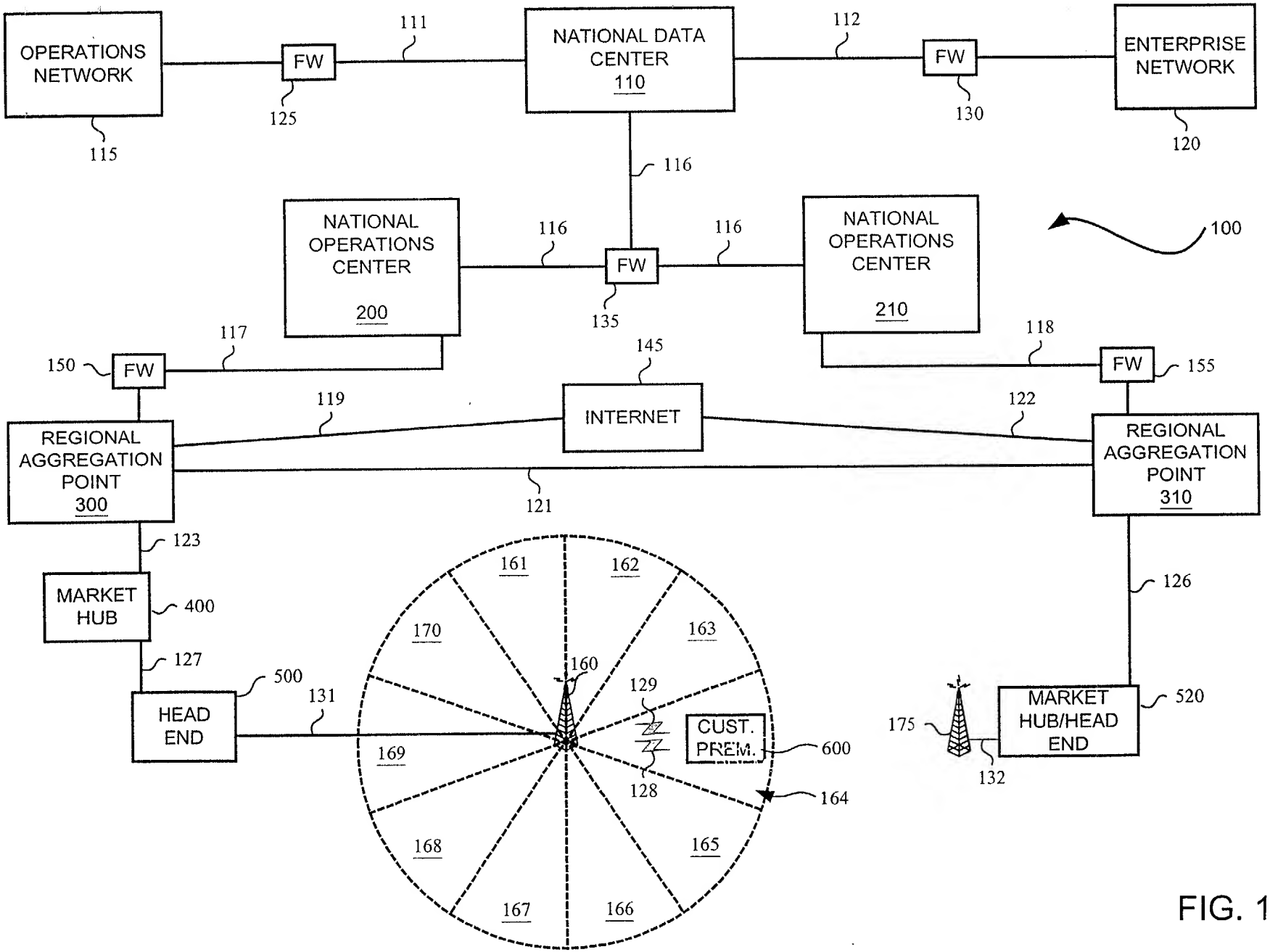

OPERATIONS NETWORK
115
FW
125
111
NATIONAL DATA CENTER
110
112
FW
130
ENTERPRISE NETWORK
120
116
NATIONAL OPERATIONS CENTER
200
116
FW
135
116
NATIONAL OPERATIONS CENTER
210
100
150
FW
117
145
118
FW
155
INTERNET
119
122
REGIONAL AGGREGATION POINT
300
121
REGIONAL AGGREGATION POINT
310
123
MARKET HUB
400
126
127
500
HEAD END
131
161
162
163
170
160
129
CUST. PREM.
600
169
128
164
168
165
167
166
175
MARKET HUB/HEAD END
520
132

FIG. 1

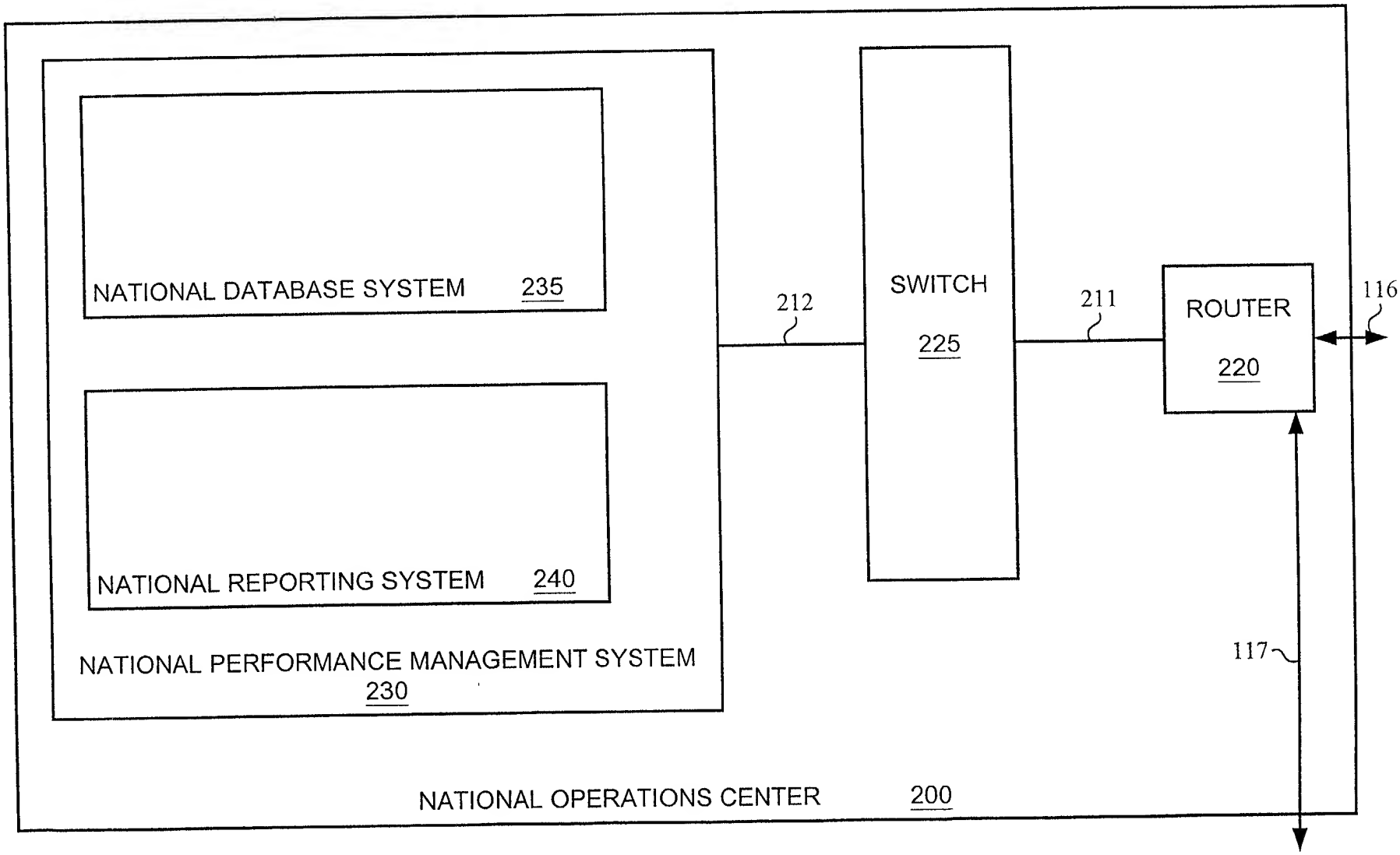

NATIONAL DATABASE SYSTEM 235
NATIONAL REPORTING SYSTEM 240
NATIONAL PERFORMANCE MANAGEMENT SYSTEM 230
212
SWITCH 225
211
ROUTER 220
116
117
NATIONAL OPERATIONS CENTER 200

FIG. 2

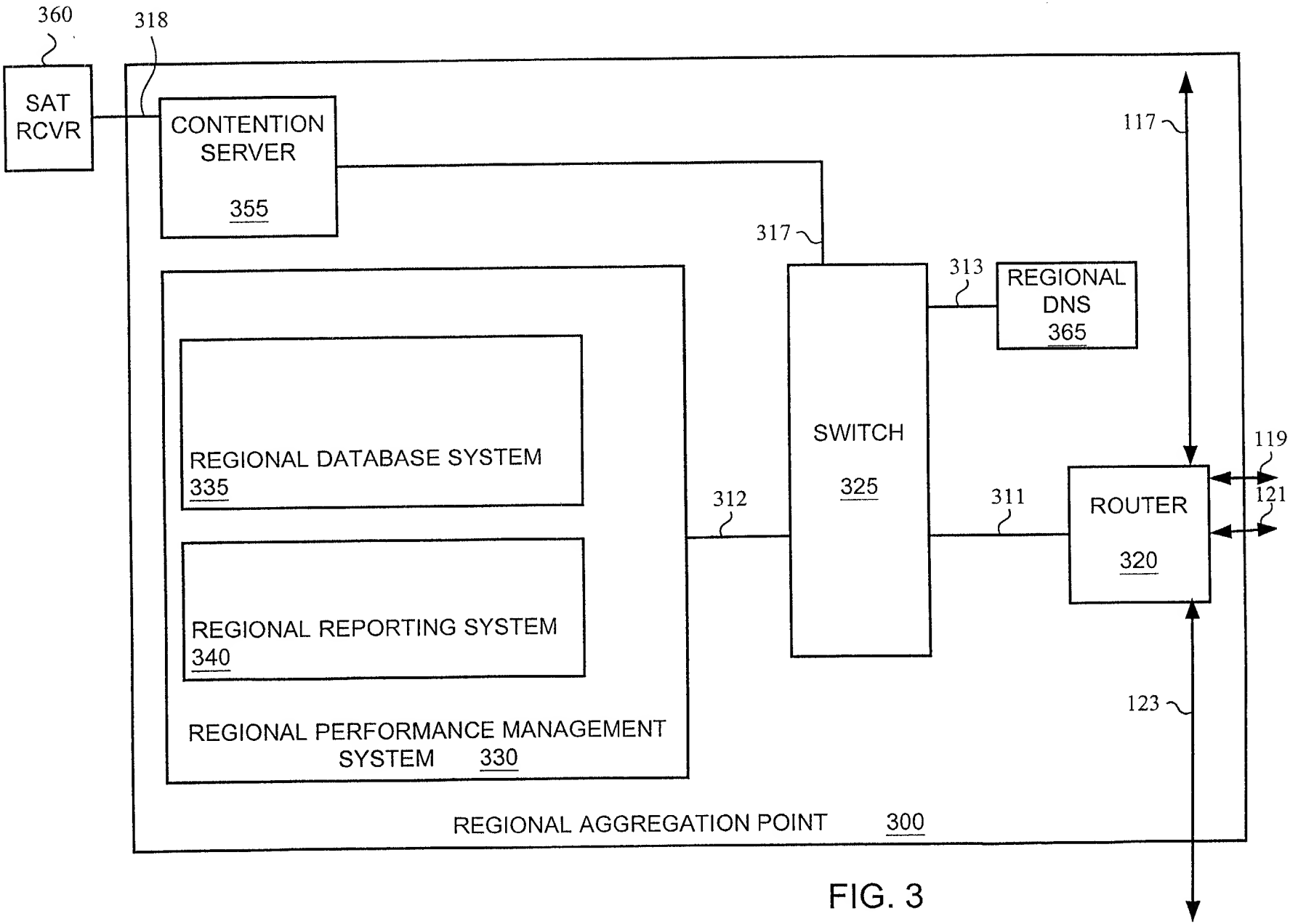

360
318
SAT RCVR
CONTENTION SERVER
355
317
313
REGIONAL DNS
365
117
SWITCH
325
119
121
REGIONAL DATABASE SYSTEM
335
312
311
ROUTER
320
REGIONAL REPORTING SYSTEM
340
123
REGIONAL PERFORMANCE MANAGEMENT SYSTEM 330
REGIONAL AGGREGATION POINT 300

FIG. 3

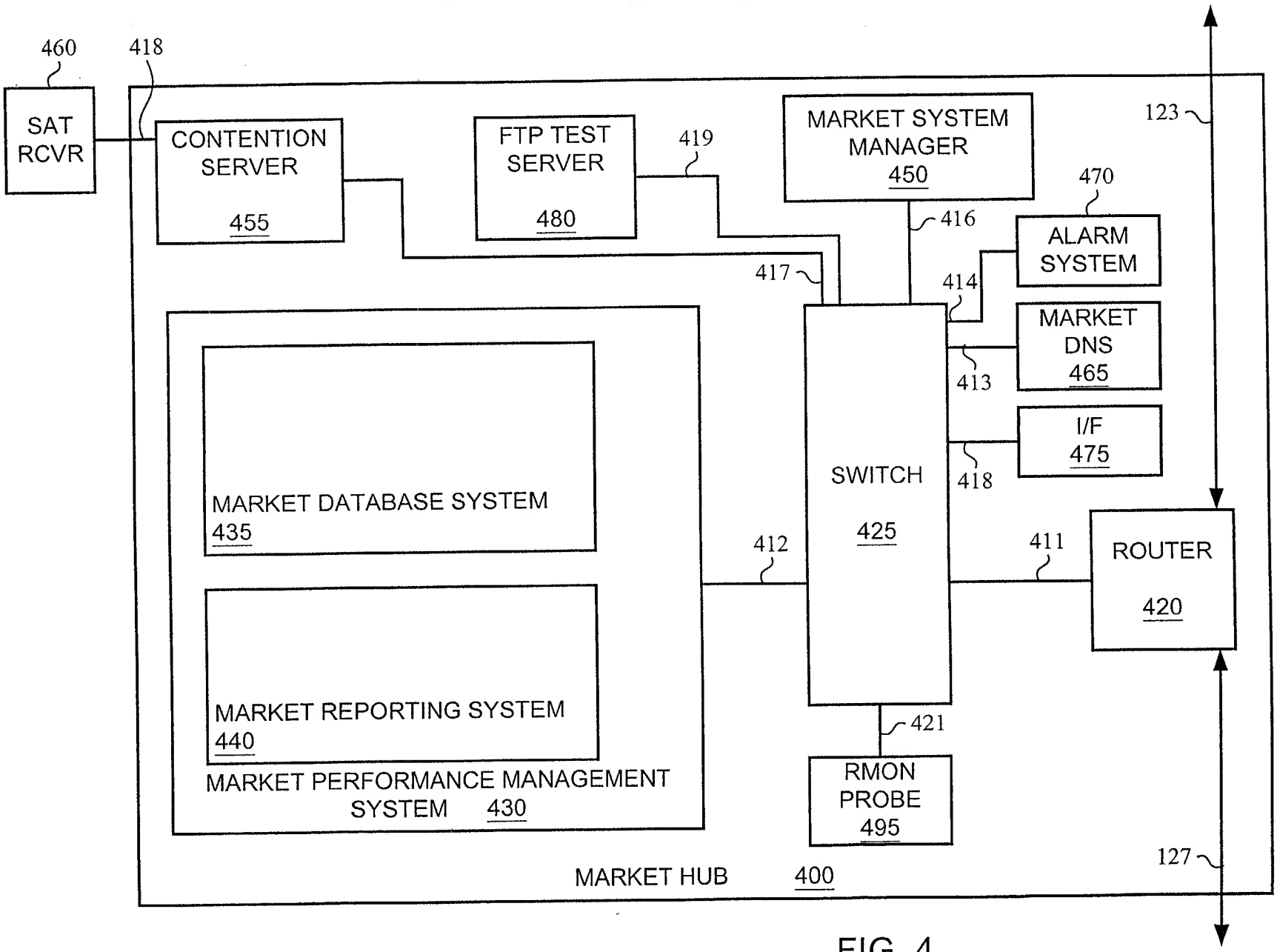
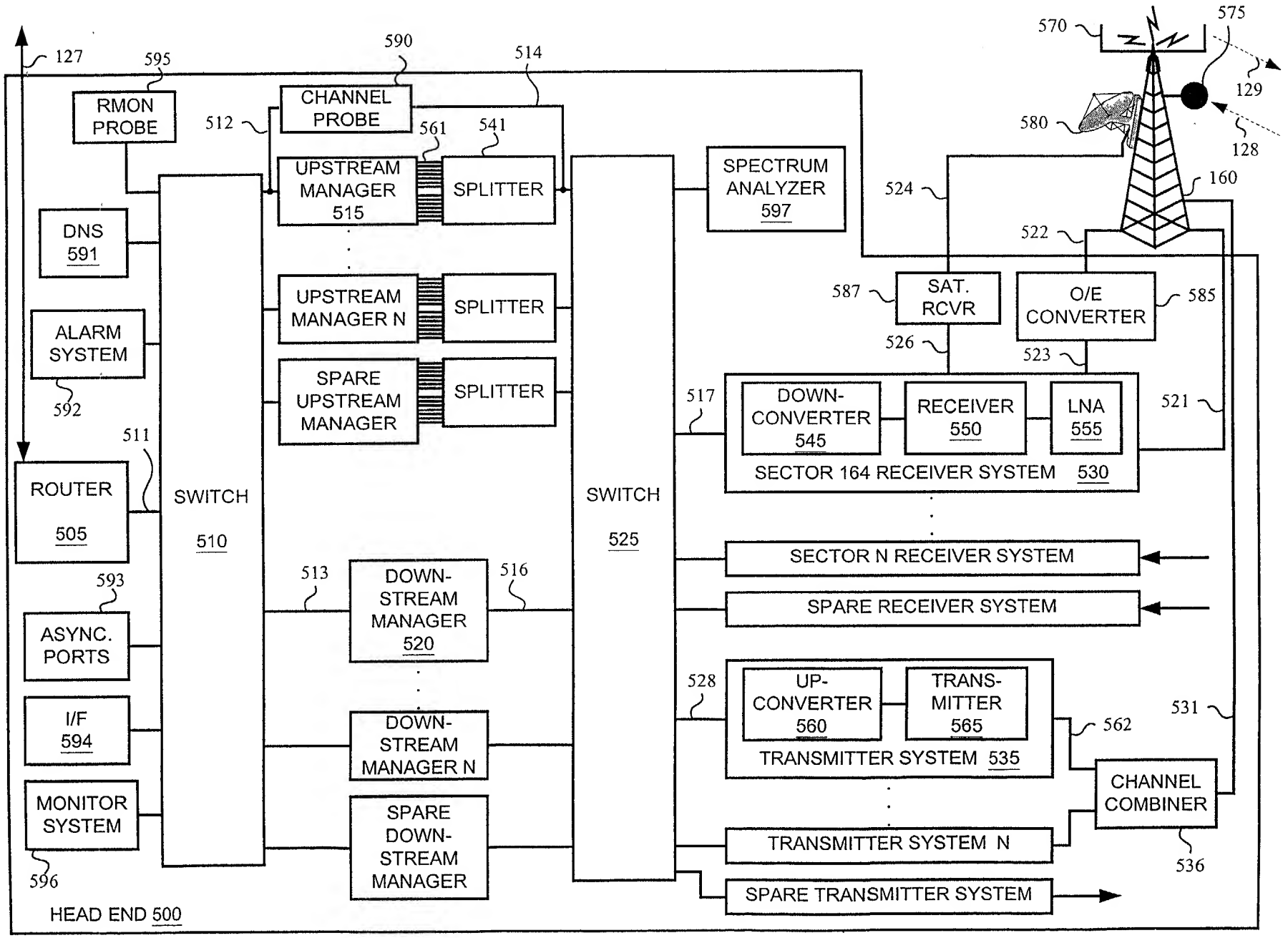

460
418
SAT RCVR
CONTENTION SERVER 455
FTP TEST SERVER 480
419
MARKET SYSTEM MANAGER 450
123
470
ALARM SYSTEM
416
417
414
MARKET DNS 465
413
I/F 475
418
SWITCH 425
MARKET DATABASE SYSTEM 435
412
411
ROUTER 420
MARKET REPORTING SYSTEM 440
421
MARKET PERFORMANCE MANAGEMENT SYSTEM 430
RMON PROBE 495
127
MARKET HUB 400

FIG. 4

FIG. 5


127
595
590
514
RMON PROBE
CHANNEL PROBE
512
561
541
UPSTREAM MANAGER 515
SPLITTER
UPSTREAM MANAGER N
SPLITTER
SPARE UPSTREAM MANAGER
SPLITTER
DNS 591
ALARM SYSTEM
592
511
ROUTER 505
SWITCH 510
593
ASYNC. PORTS
I/F 594
MONITOR SYSTEM
596
HEAD END 500
513
DOWN-STREAM MANAGER 520
516
DOWN-STREAM MANAGER N
SPARE DOWN-STREAM MANAGER
SWITCH 525
SPECTRUM ANALYZER 597
570
575
129
128
580
160
524
522
587
SAT. RCVR
O/E CONVERTER
585
526
523
517
DOWN-CONVERTER 545
RECEIVER 550
LNA 555
521
SECTOR 164 RECEIVER SYSTEM 530
SECTOR N RECEIVER SYSTEM
SPARE RECEIVER SYSTEM
528
UP-CONVERTER 560
TRANS-MITTER 565
TRANSMITTER SYSTEM 535
562
531
CHANNEL COMBINER
TRANSMITTER SYSTEM N
536
SPARE TRANSMITTER SYSTEM

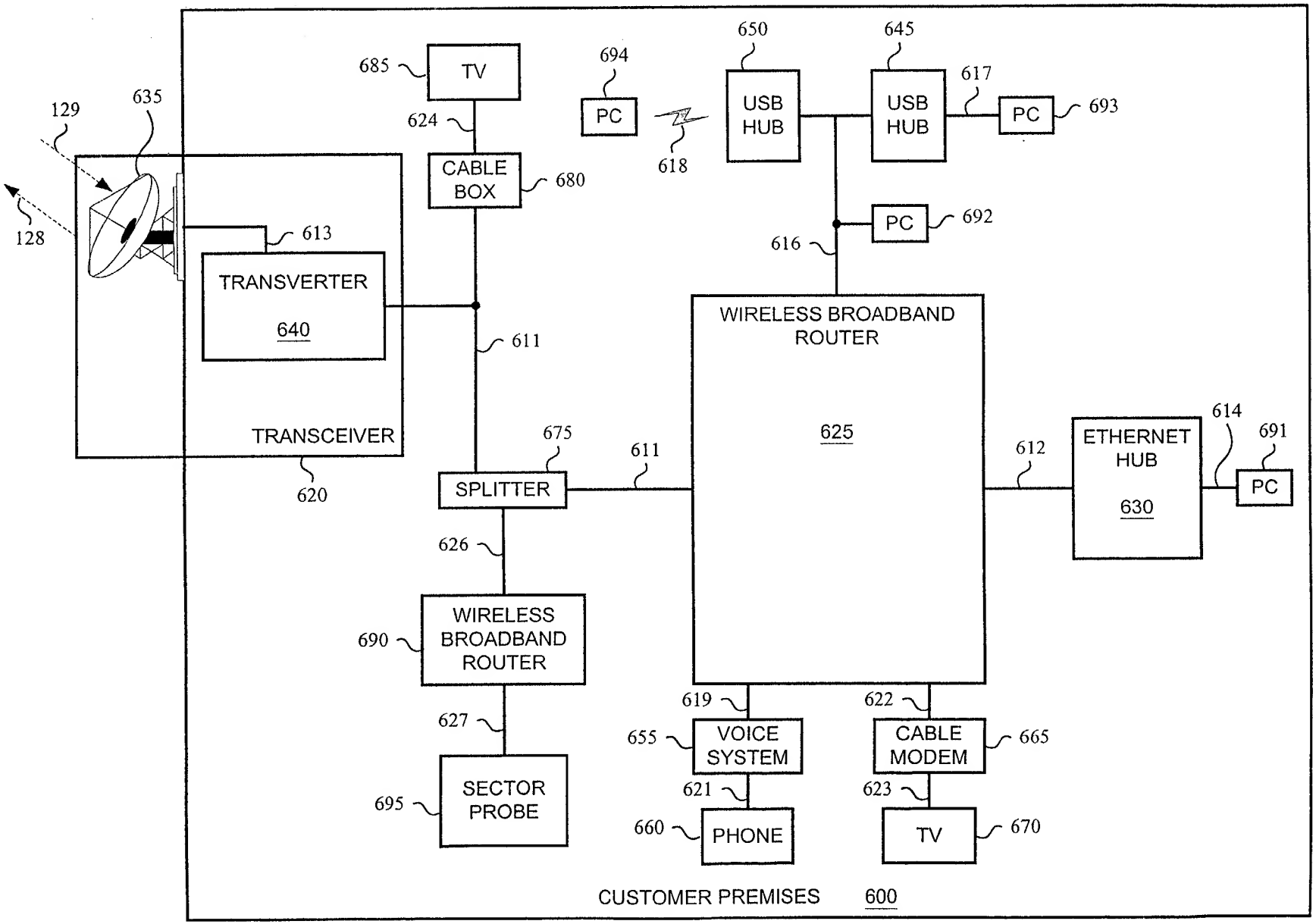

685
TV
694
PC
650
USB HUB
645
USB HUB
617
PC
693
618
624
CABLE BOX
680
129
635
128
613
TRANSVERTER
640
TRANSCEIVER
620
611
PC
692
616
WIRELESS BROADBAND ROUTER
625
675
SPLITTER
611
612
ETHERNET HUB
630
614
691
PC
626
690
WIRELESS BROADBAND ROUTER
627
695
SECTOR PROBE
619
655
VOICE SYSTEM
621
660
PHONE
622
CABLE MODEM
665
623
TV
670
CUSTOMER PREMISES
600

FIG. 6

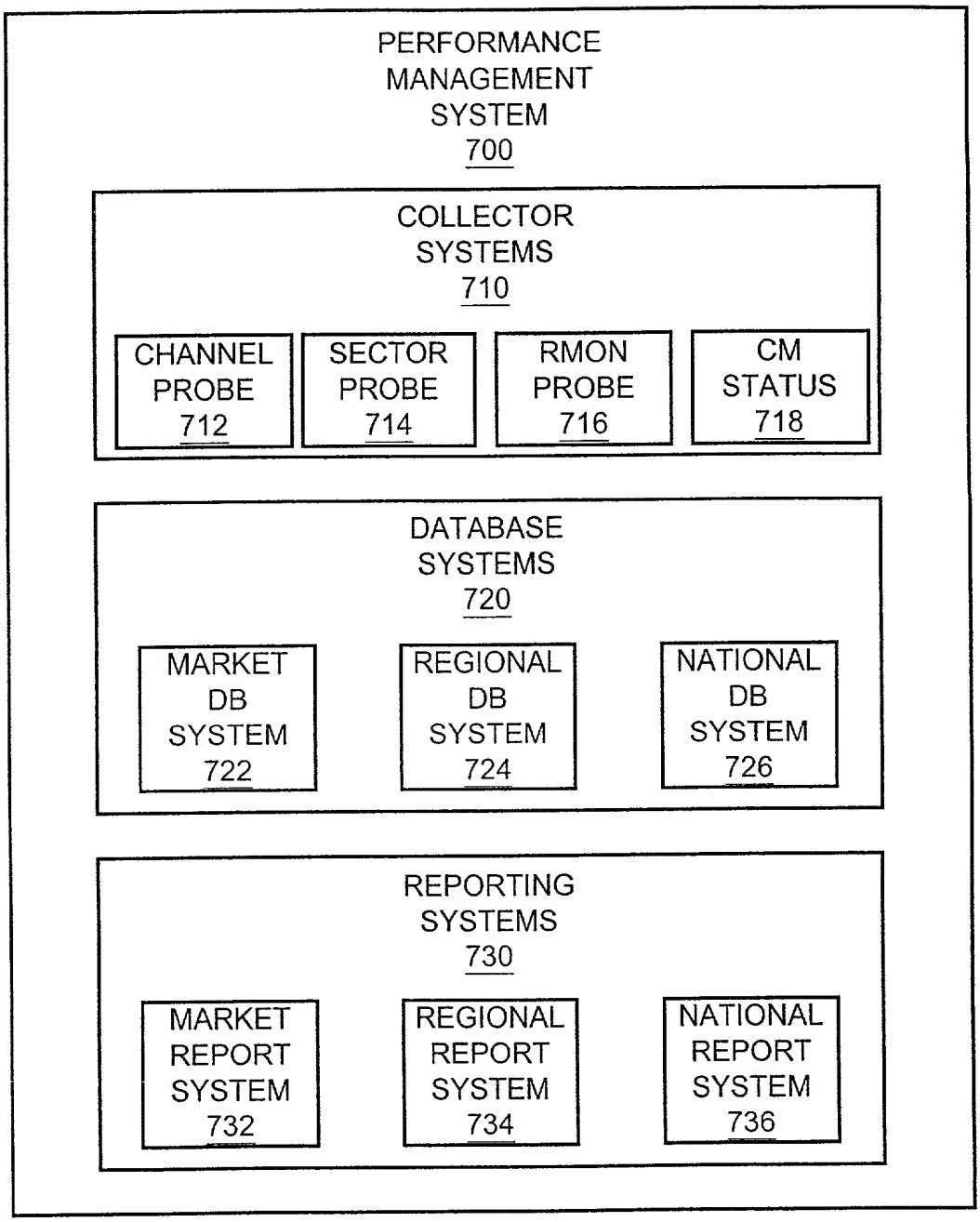

PERFORMANCE MANAGEMENT SYSTEM 700
COLLECTOR SYSTEMS 710
CHANNEL PROBE 712
SECTOR PROBE 714
RMON PROBE 716
CM STATUS 718
DATABASE SYSTEMS 720
MARKET DB SYSTEM 722
REGIONAL DB SYSTEM 724
NATIONAL DB SYSTEM 726
REPORTING SYSTEMS 730
MARKET REPORT SYSTEM 732
REGIONAL REPORT SYSTEM 734
NATIONAL REPORT SYSTEM 736

FIG. 7

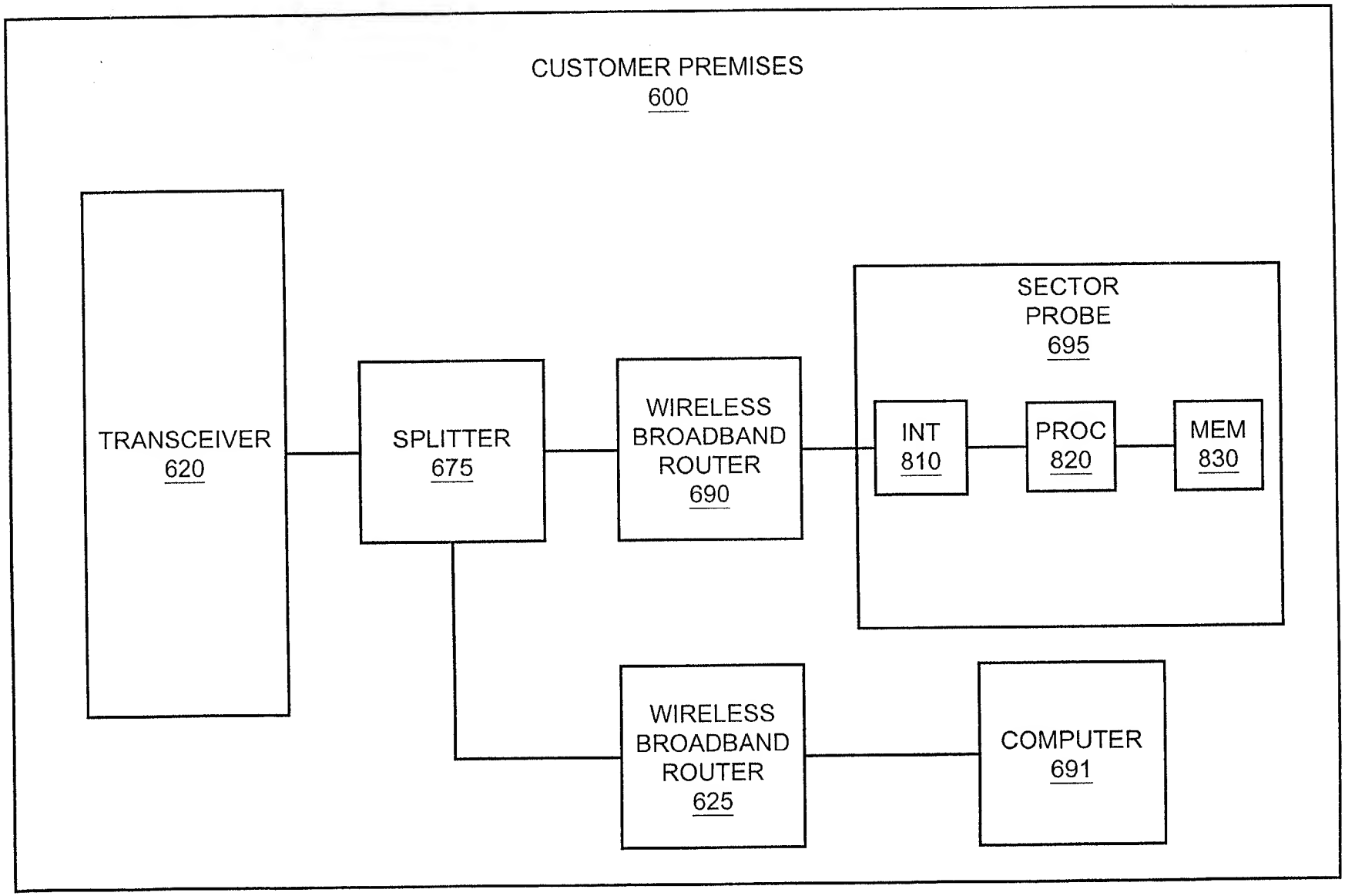

CUSTOMER PREMISES
600
TRANSCEIVER
620
SPLITTER
675
WIRELESS
BROADBAND
ROUTER
690
SECTOR
PROBE
695
INT
810
PROC
820
MEM
830
WIRELESS
BROADBAND
ROUTER
625
COMPUTER
691

FIG. 8

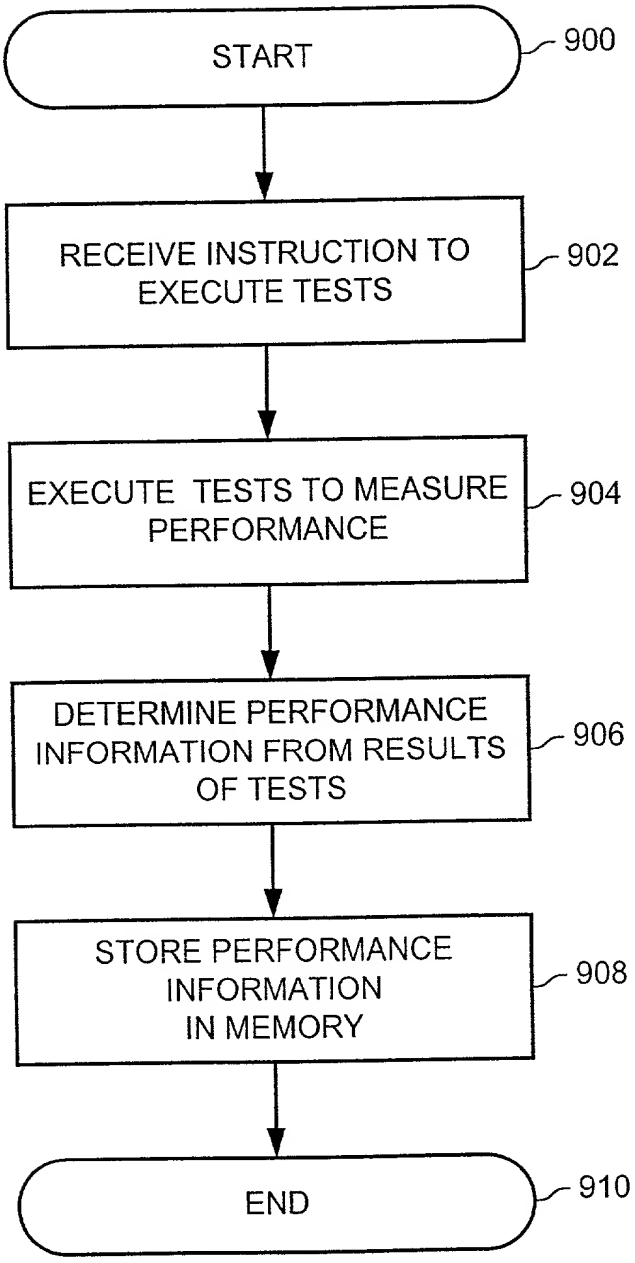

START
900
RECEIVE INSTRUCTION TO EXECUTE TESTS
902
EXECUTE TESTS TO MEASURE PERFORMANCE
904
DETERMINE PERFORMANCE INFORMATION FROM RESULTS OF TESTS
906
STORE PERFORMANCE INFORMATION IN MEMORY
908
END
910

FIG. 9

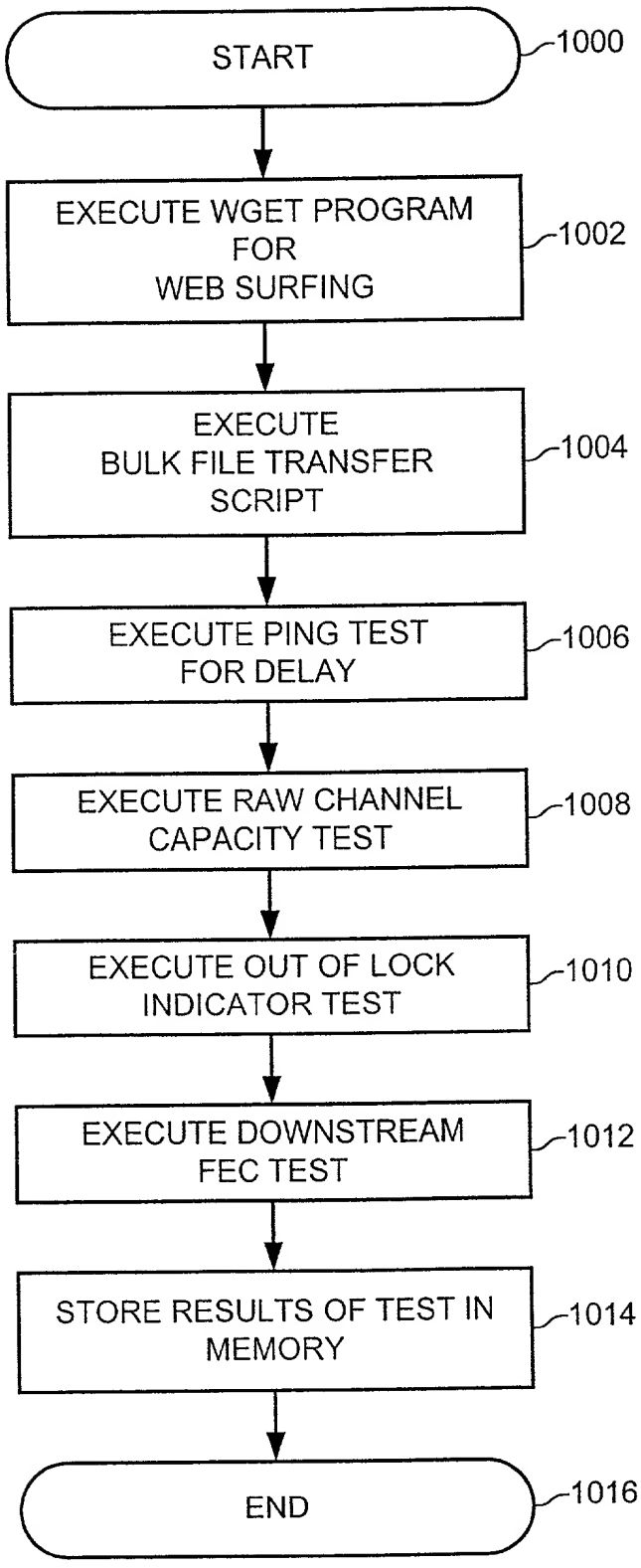

START
1000
EXECUTE WGET PROGRAM FOR WEB SURFING
1002
EXECUTE BULK FILE TRANSFER SCRIPT
1004
EXECUTE PING TEST FOR DELAY
1006
EXECUTE RAW CHANNEL CAPACITY TEST
1008
EXECUTE OUT OF LOCK INDICATOR TEST
1010
EXECUTE DOWNSTREAM FEC TEST
1012
STORE RESULTS OF TEST IN MEMORY
1014
END
1016

FIG. 10

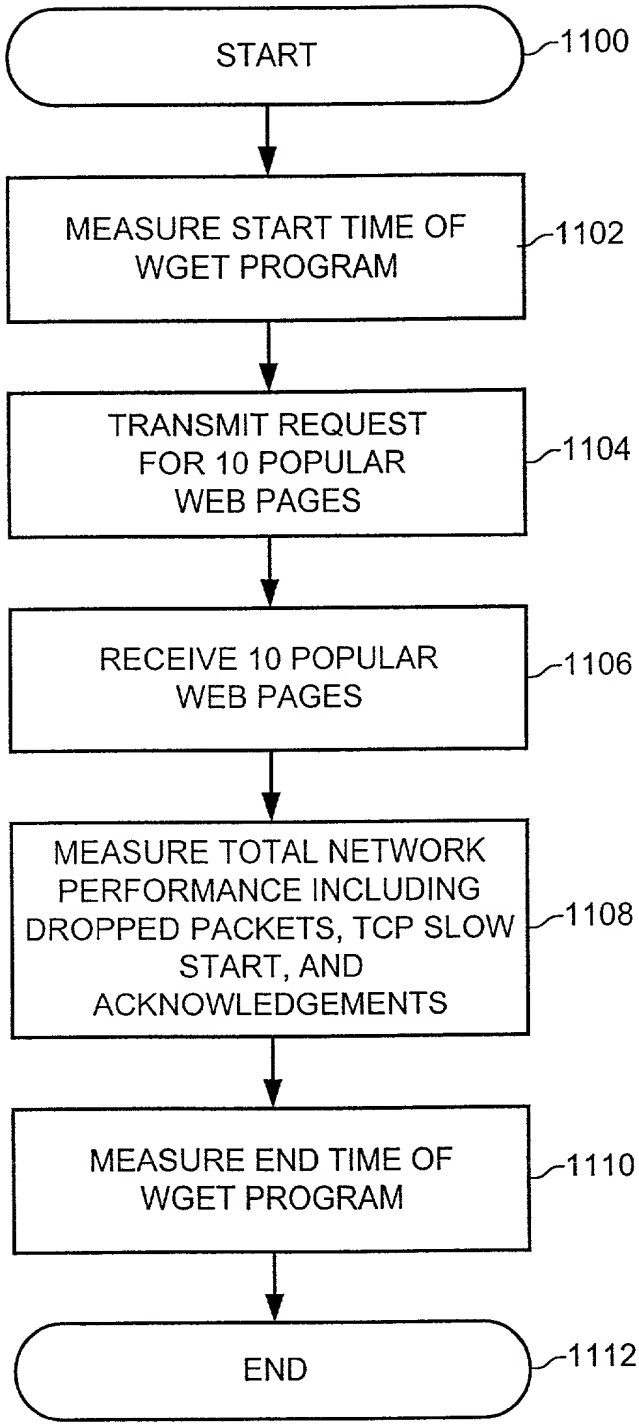

START
1100
MEASURE START TIME OF WGET PROGRAM
1102
TRANSMIT REQUEST FOR 10 POPULAR WEB PAGES
1104
RECEIVE 10 POPULAR WEB PAGES
1106
MEASURE TOTAL NETWORK PERFORMANCE INCLUDING DROPPED PACKETS, TCP SLOW START, AND ACKNOWLEDGEMENTS
1108
MEASURE END TIME OF WGET PROGRAM
1110
END
1112

FIG. 11

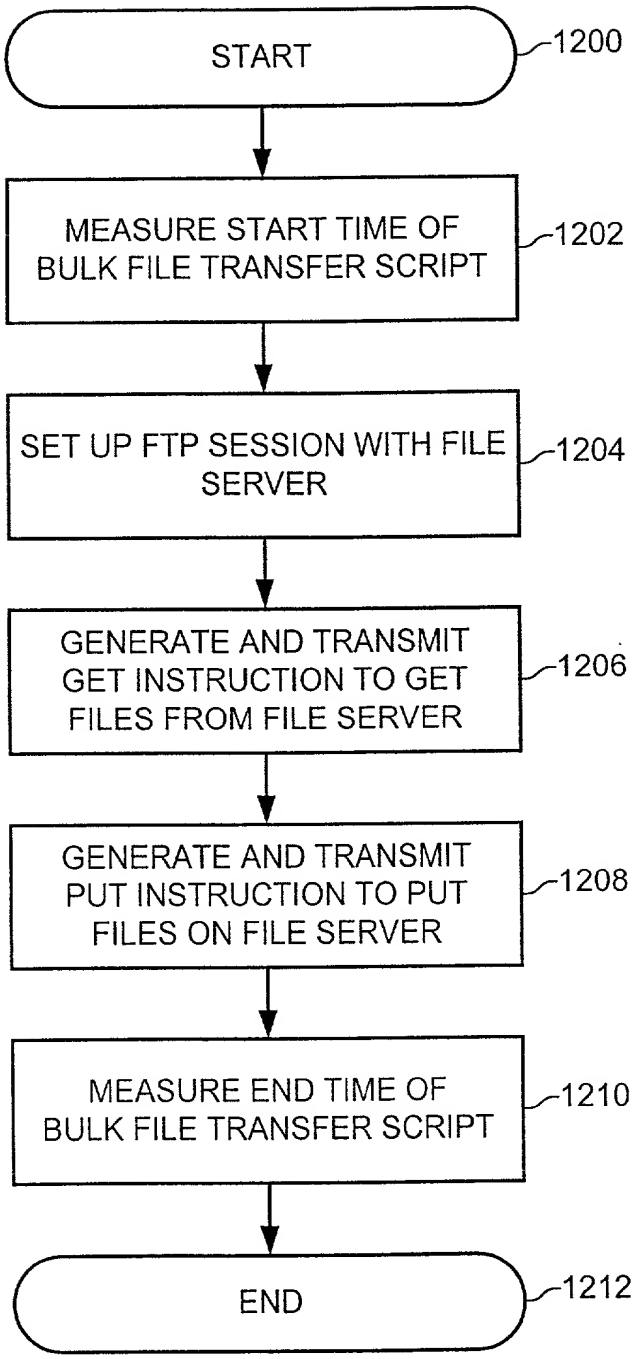

START
1200
MEASURE START TIME OF BULK FILE TRANSFER SCRIPT
1202
SET UP FTP SESSION WITH FILE SERVER
1204
GENERATE AND TRANSMIT GET INSTRUCTION TO GET FILES FROM FILE SERVER
1206
GENERATE AND TRANSMIT PUT INSTRUCTION TO PUT FILES ON FILE SERVER
1208
MEASURE END TIME OF BULK FILE TRANSFER SCRIPT
1210
END
1212

FIG. 12

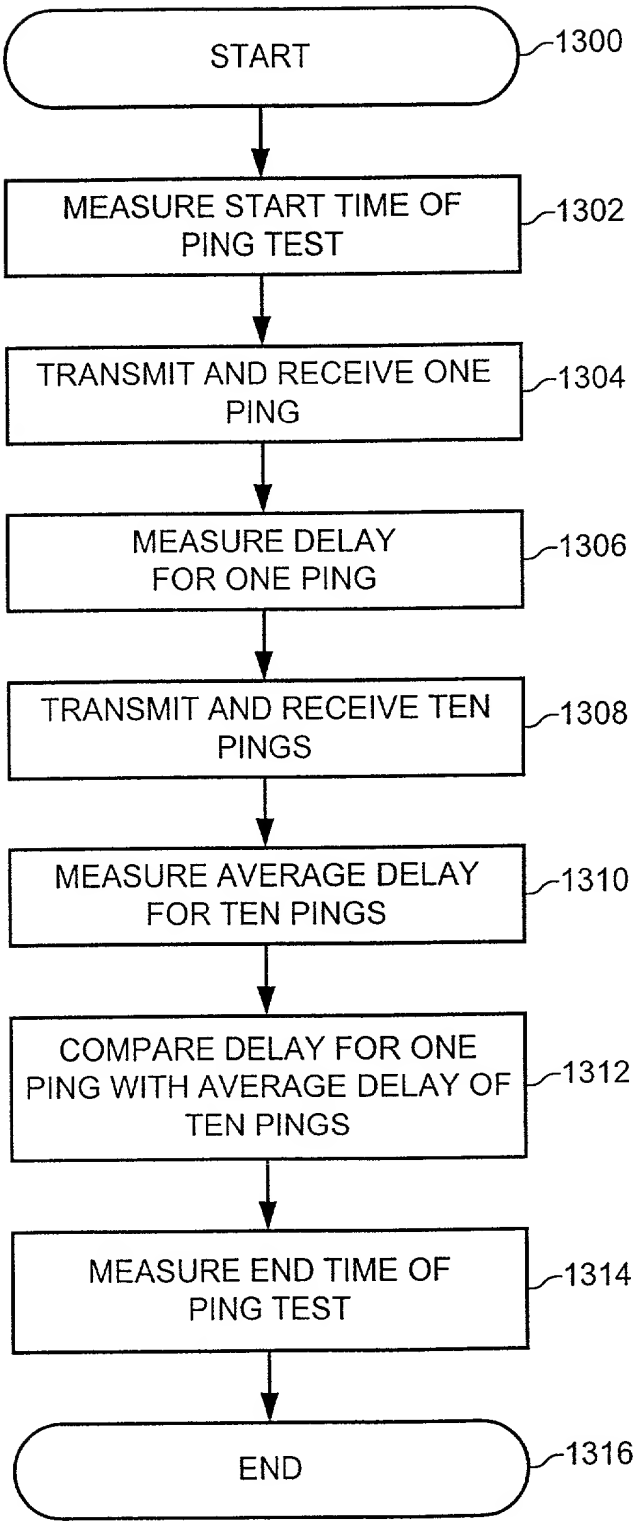

START
1300
MEASURE START TIME OF PING TEST
1302
TRANSMIT AND RECEIVE ONE PING
1304
MEASURE DELAY FOR ONE PING
1306
TRANSMIT AND RECEIVE TEN PINGS
1308
MEASURE AVERAGE DELAY FOR TEN PINGS
1310
COMPARE DELAY FOR ONE PING WITH AVERAGE DELAY OF TEN PINGS
1312
MEASURE END TIME OF PING TEST
1314
END
1316

FIG. 13

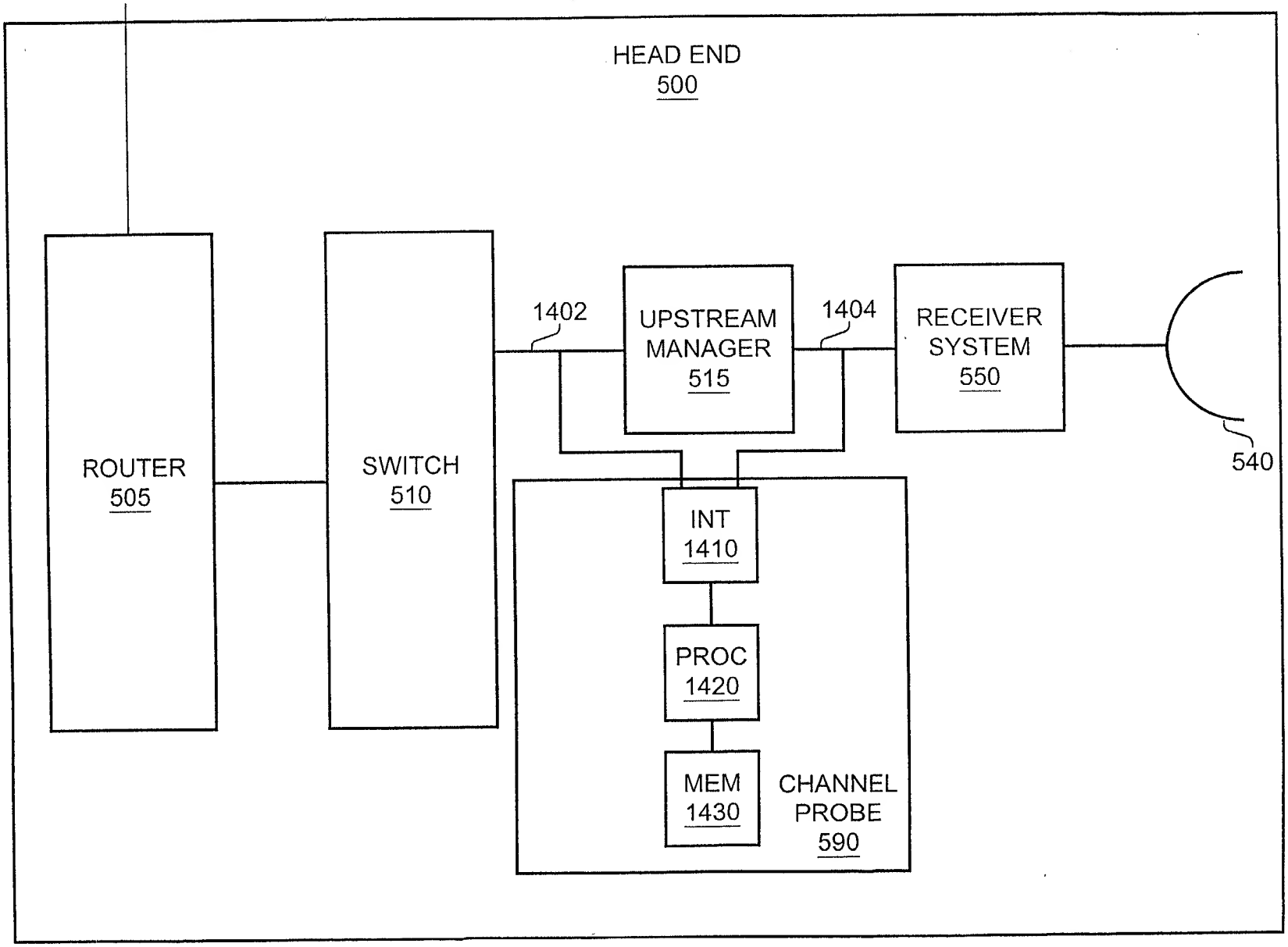

HEAD END
500
ROUTER
505
SWITCH
510
1402
UPSTREAM
MANAGER
515
1404
RECEIVER
SYSTEM
550
540
INT
1410
PROC
1420
MEM
1430
CHANNEL
PROBE
590

FIG. 14

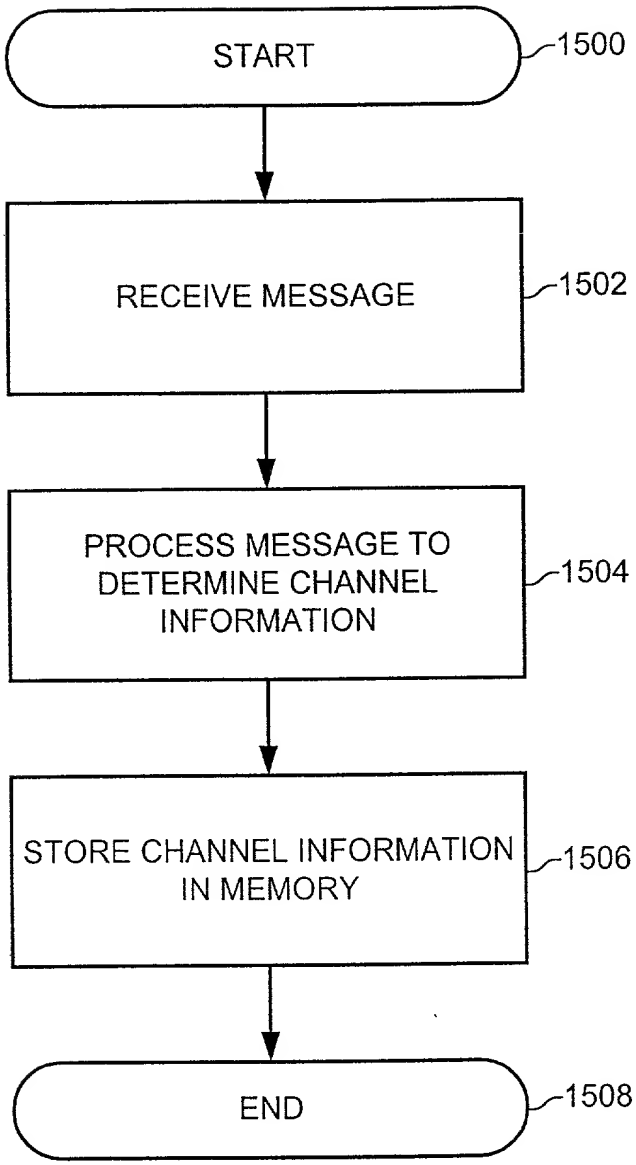

START
1500
RECEIVE MESSAGE
1502
PROCESS MESSAGE TO DETERMINE CHANNEL INFORMATION
1504
STORE CHANNEL INFORMATION IN MEMORY
1506
END
1508

FIG. 15

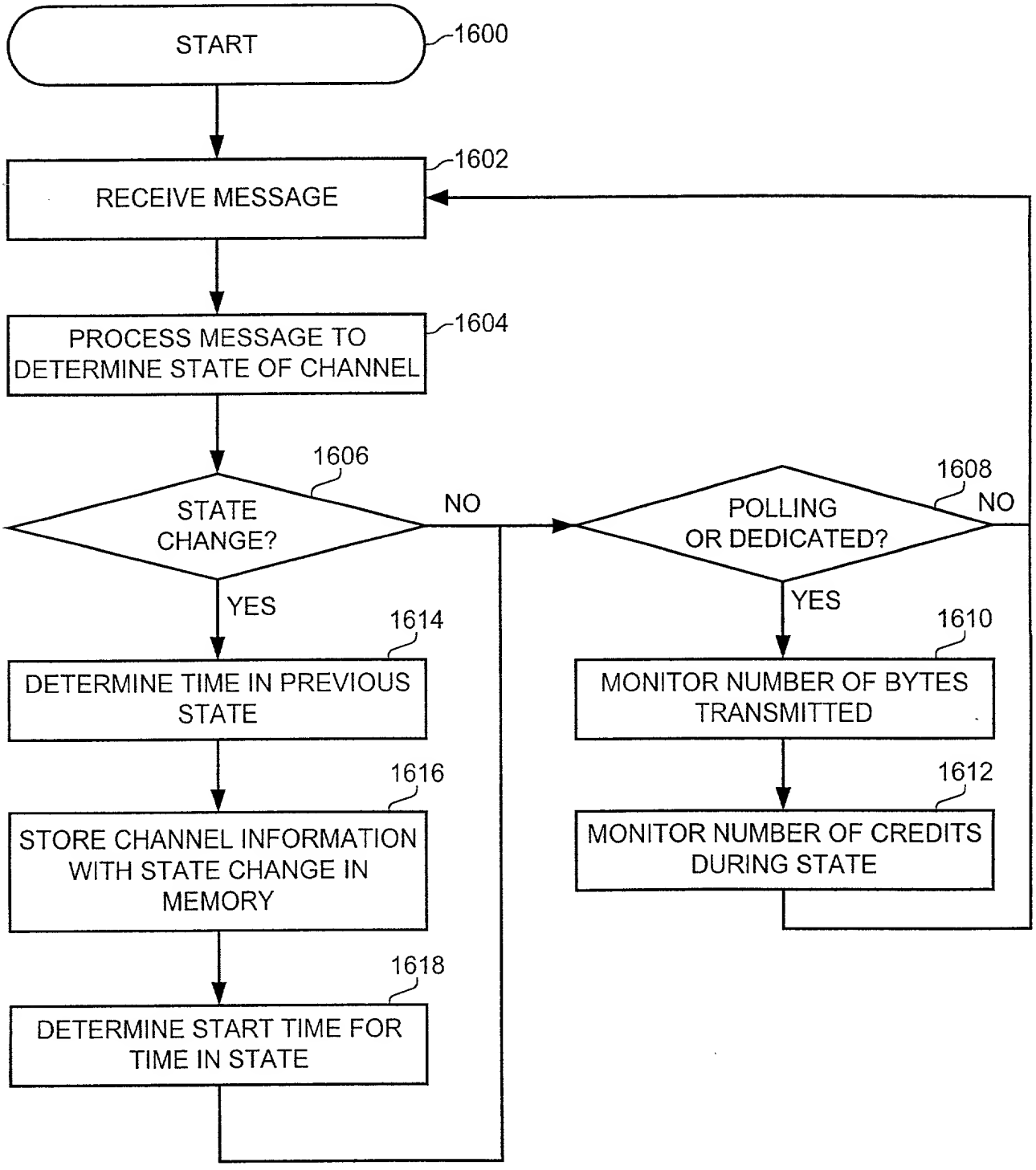

START
1600
RECEIVE MESSAGE
1602
PROCESS MESSAGE TO DETERMINE STATE OF CHANNEL
1604
STATE CHANGE?
1606
NO
YES
POLLING OR DEDICATED?
1608
NO
YES
DETERMINE TIME IN PREVIOUS STATE
1614
STORE CHANNEL INFORMATION WITH STATE CHANGE IN MEMORY
1616
DETERMINE START TIME FOR TIME IN STATE
1618
MONITOR NUMBER OF BYTES TRANSMITTED
1610
MONITOR NUMBER OF CREDITS DURING STATE
1612

FIG. 16

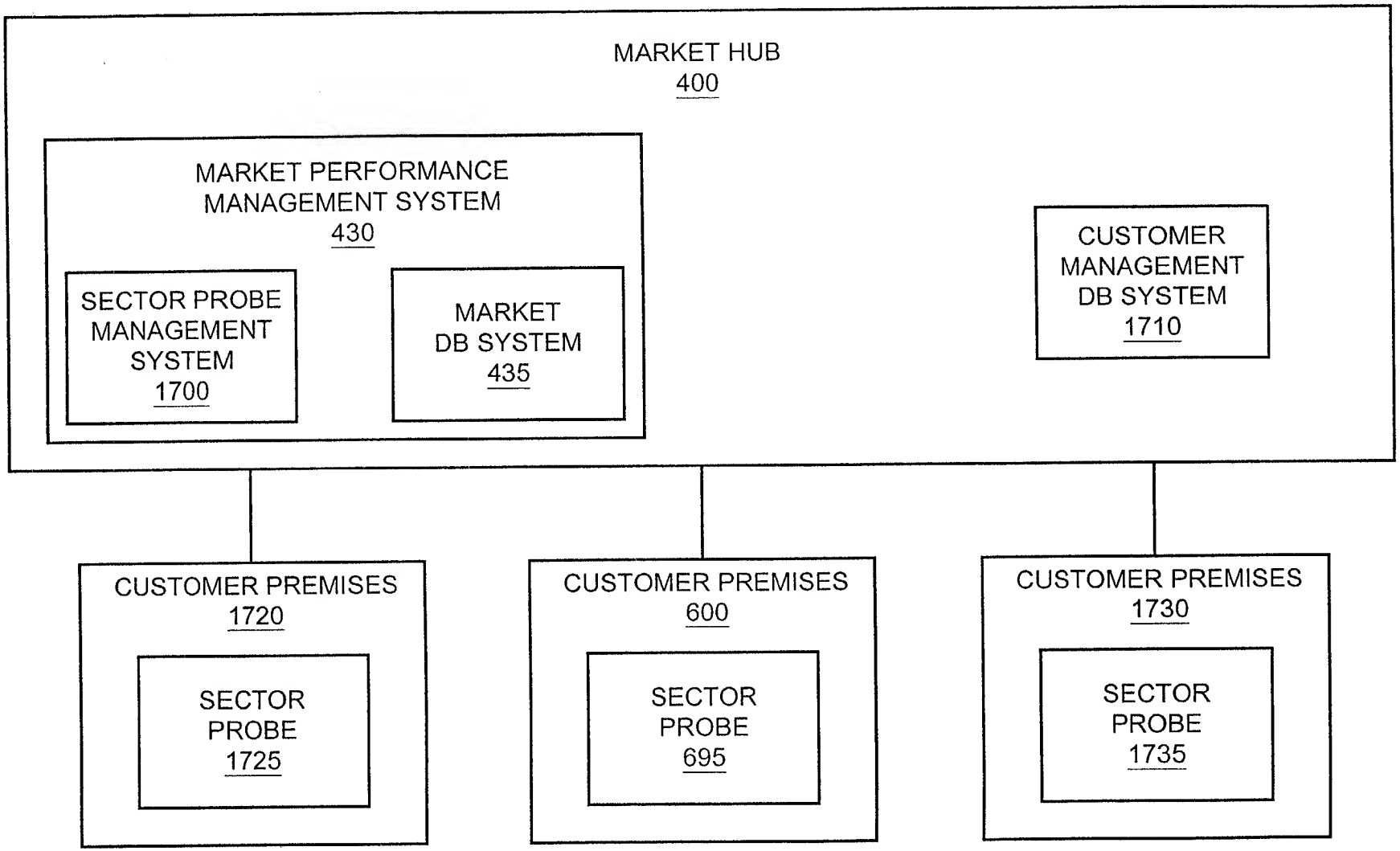

MARKET HUB
400
MARKET PERFORMANCE MANAGEMENT SYSTEM
430
SECTOR PROBE MANAGEMENT SYSTEM
1700
MARKET DB SYSTEM
435
CUSTOMER MANAGEMENT DB SYSTEM
1710
CUSTOMER PREMISES
1720
SECTOR PROBE
1725
CUSTOMER PREMISES
600
SECTOR PROBE
695
CUSTOMER PREMISES
1730
SECTOR PROBE
1735

FIG. 17

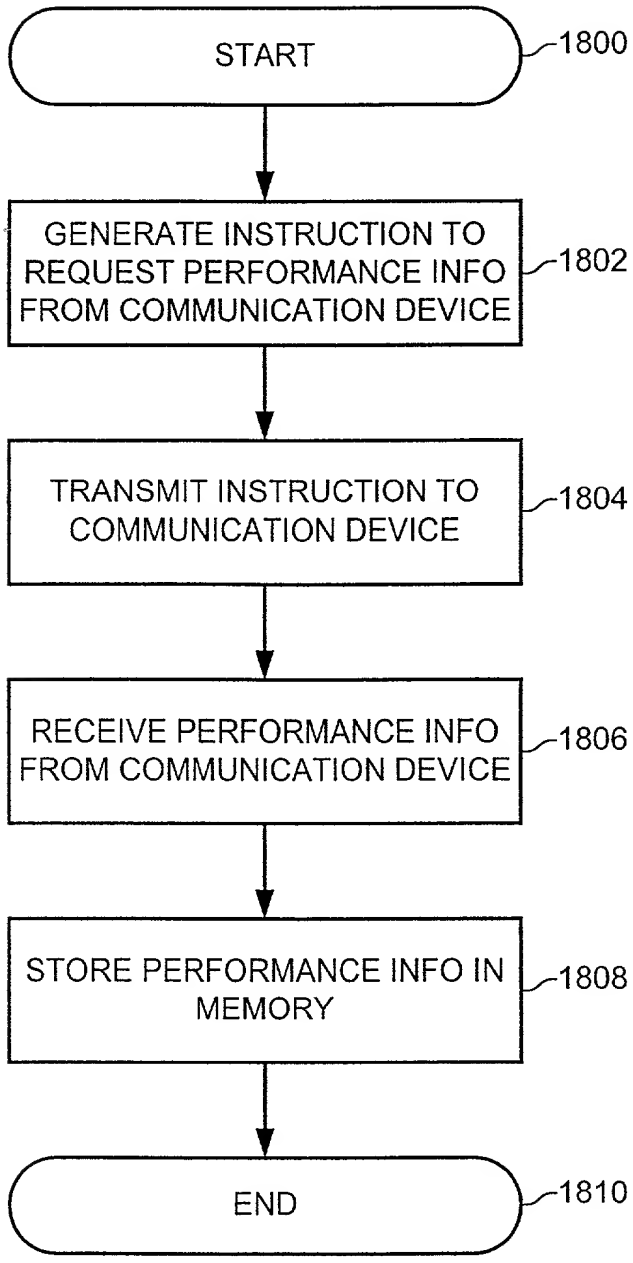

START
1800
GENERATE INSTRUCTION TO REQUEST PERFORMANCE INFO FROM COMMUNICATION DEVICE
1802
TRANSMIT INSTRUCTION TO COMMUNICATION DEVICE
1804
RECEIVE PERFORMANCE INFO FROM COMMUNICATION DEVICE
1806
STORE PERFORMANCE INFO IN MEMORY
1808
END
1810

FIG. 18

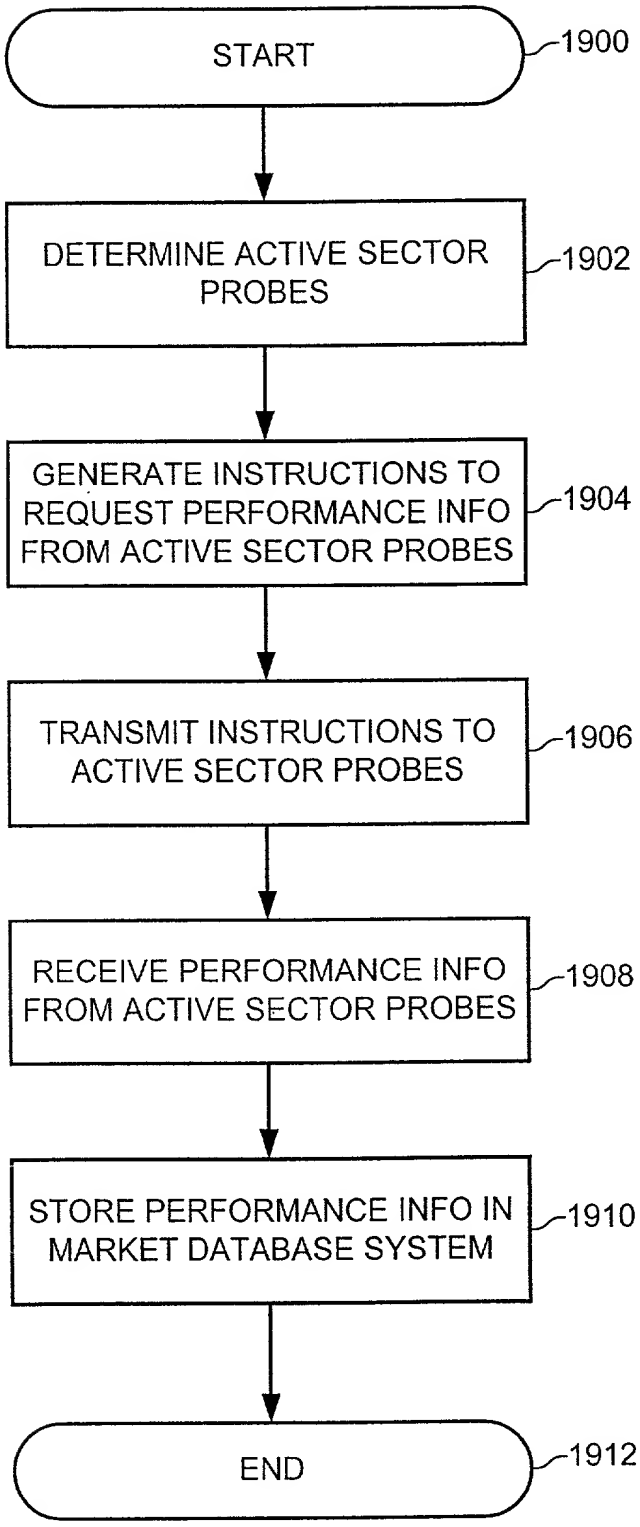

START
1900
DETERMINE ACTIVE SECTOR PROBES
1902
GENERATE INSTRUCTIONS TO REQUEST PERFORMANCE INFO FROM ACTIVE SECTOR PROBES
1904
TRANSMIT INSTRUCTIONS TO ACTIVE SECTOR PROBES
1906
RECEIVE PERFORMANCE INFO FROM ACTIVE SECTOR PROBES
1908
STORE PERFORMANCE INFO IN MARKET DATABASE SYSTEM
1910
END
1912

FIG. 19

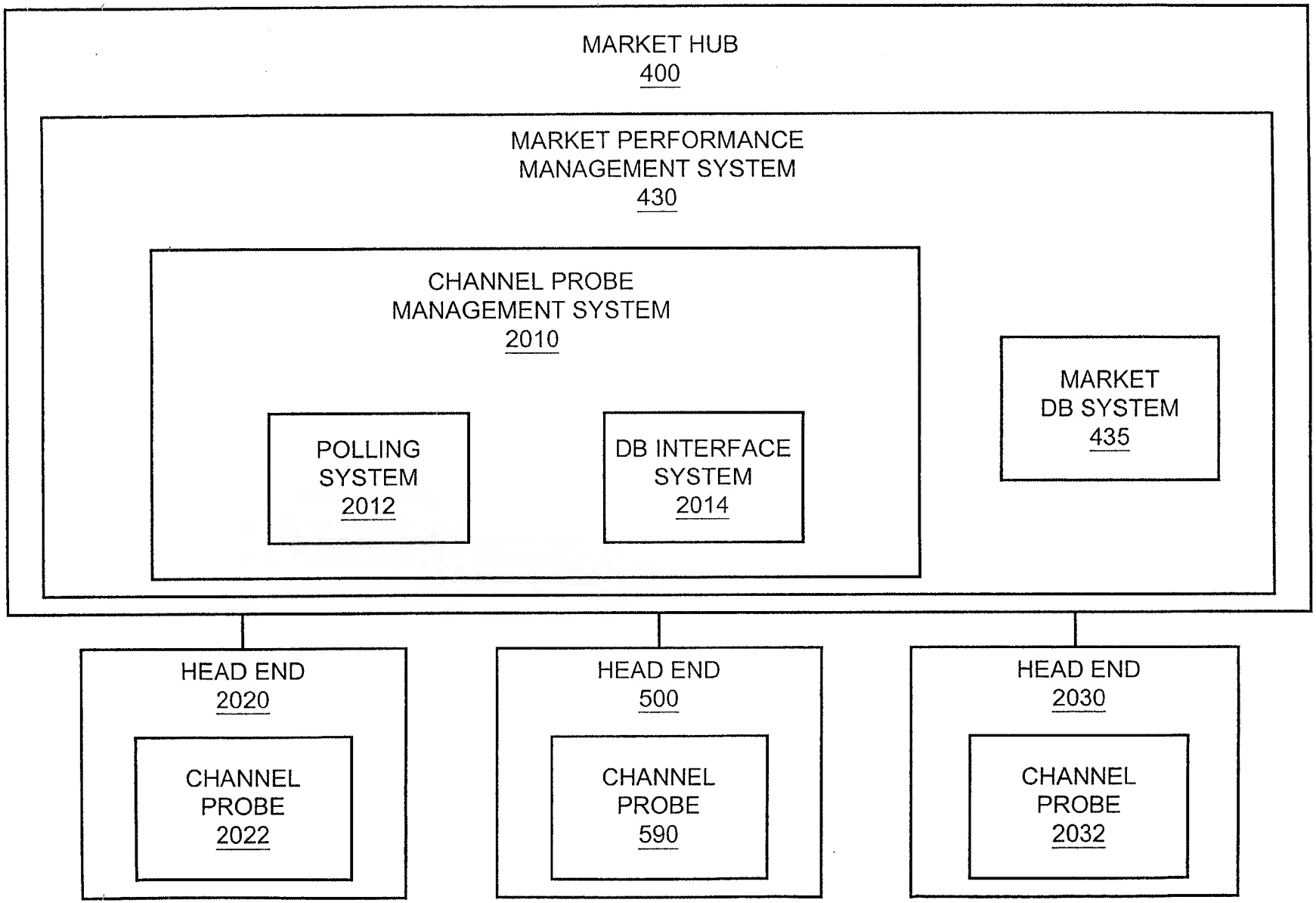

MARKET HUB
400
MARKET PERFORMANCE MANAGEMENT SYSTEM
430
CHANNEL PROBE MANAGEMENT SYSTEM
2010
POLLING SYSTEM
2012
DB INTERFACE SYSTEM
2014
MARKET DB SYSTEM
435
HEAD END
2020
CHANNEL PROBE
2022
HEAD END
500
CHANNEL PROBE
590
HEAD END
2030
CHANNEL PROBE
2032

FIG. 20

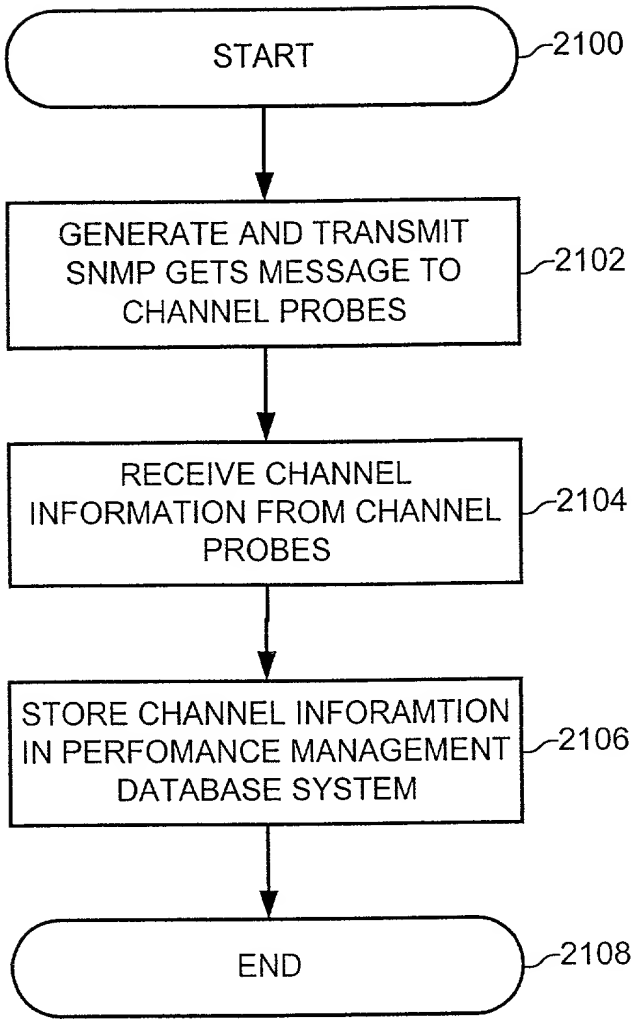

START
2100
GENERATE AND TRANSMIT SNMP GETS MESSAGE TO CHANNEL PROBES
2102
RECEIVE CHANNEL INFORMATION FROM CHANNEL PROBES
2104
STORE CHANNEL INFORAMTION IN PERFOMANCE MANAGEMENT DATABASE SYSTEM
2106
END
2108

FIG. 21

TOZTOF" ZZ6T8660

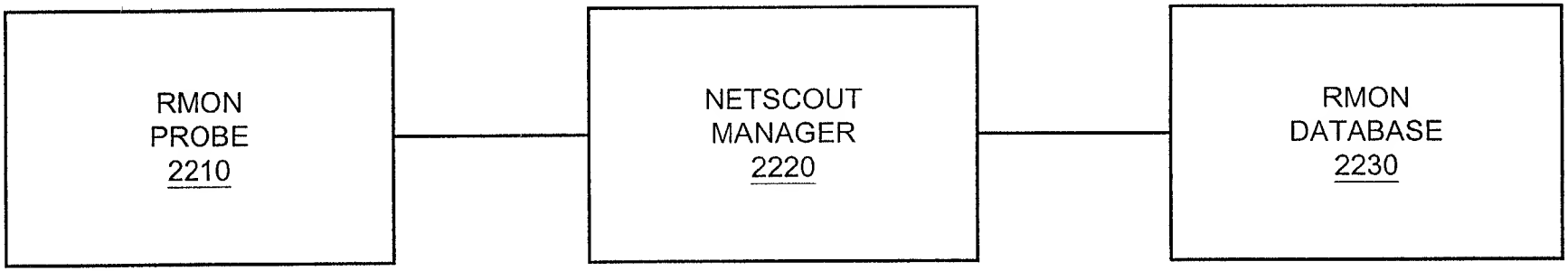


FIG. 22
PRIOR ART

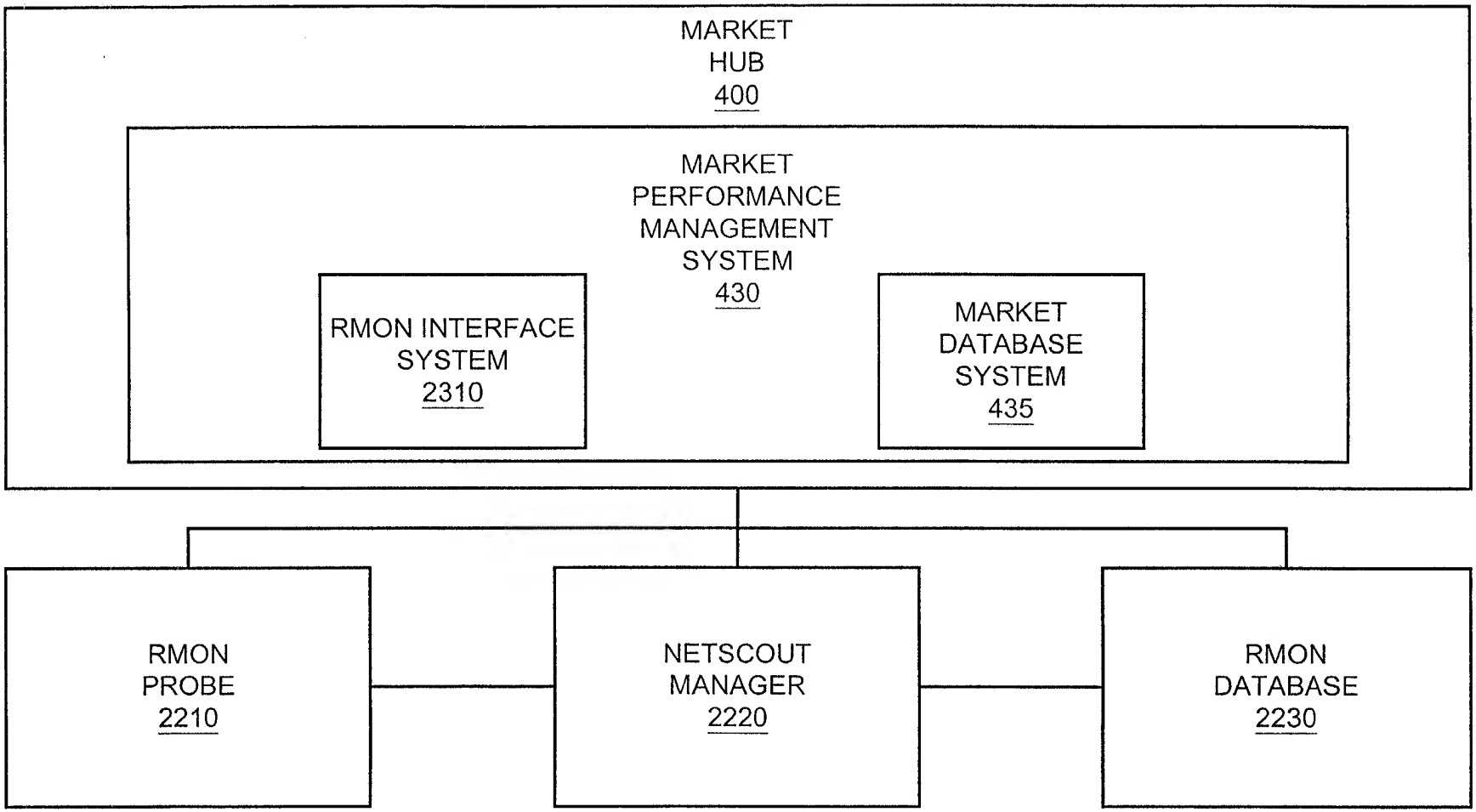

MARKET
HUB
400
MARKET
PERFORMANCE
MANAGEMENT
SYSTEM
430
RMON INTERFACE
SYSTEM
2310
MARKET
DATABASE
SYSTEM
435
RMON
PROBE
2210
NETSCOUT
MANAGER
2220
RMON
DATABASE
2230

FIG. 23

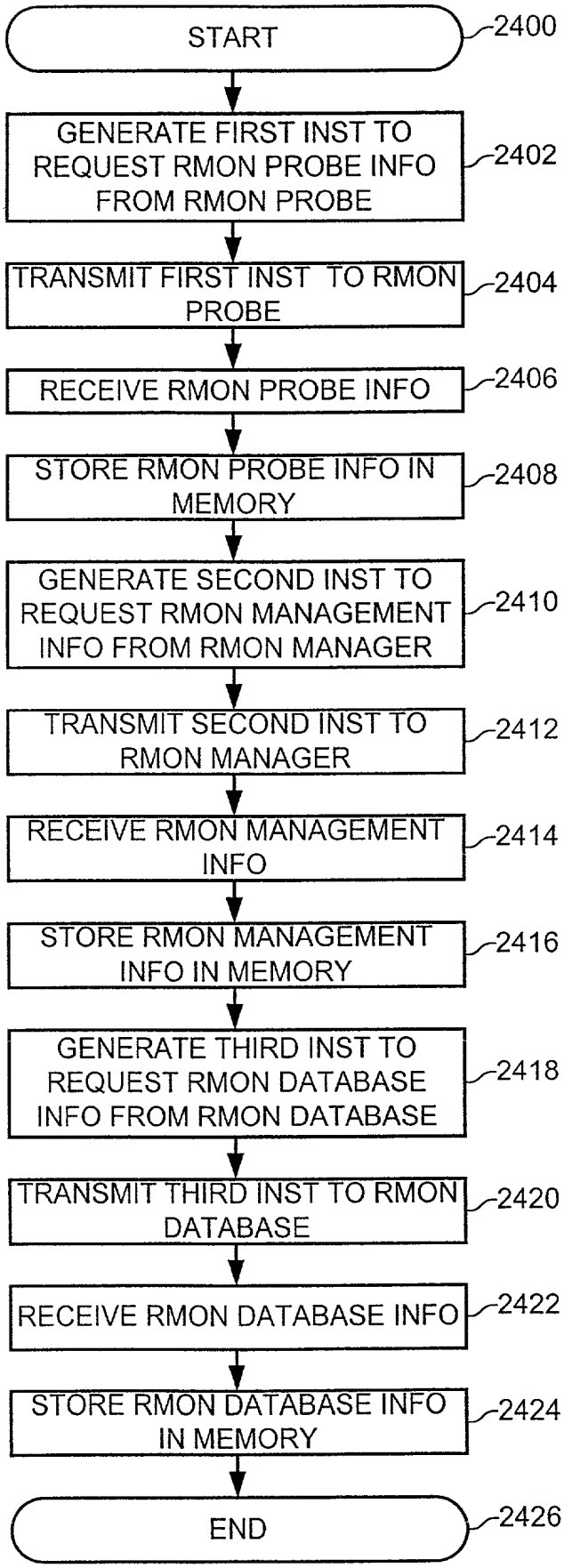

START
2400
GENERATE FIRST INST TO REQUEST RMON PROBE INFO FROM RMON PROBE
2402
TRANSMIT FIRST INST TO RMON PROBE
2404
RECEIVE RMON PROBE INFO
2406
STORE RMON PROBE INFO IN MEMORY
2408
GENERATE SECOND INST TO REQUEST RMON MANAGEMENT INFO FROM RMON MANAGER
2410
TRANSMIT SECOND INST TO RMON MANAGER
2412
RECEIVE RMON MANAGEMENT INFO
2414
STORE RMON MANAGEMENT INFO IN MEMORY
2416
GENERATE THIRD INST TO REQUEST RMON DATABASE INFO FROM RMON DATABASE
2418
TRANSMIT THIRD INST TO RMON DATABASE
2420
RECEIVE RMON DATABASE INFO
2422
STORE RMON DATABASE INFO IN MEMORY
2424
END
2426

FIG. 24

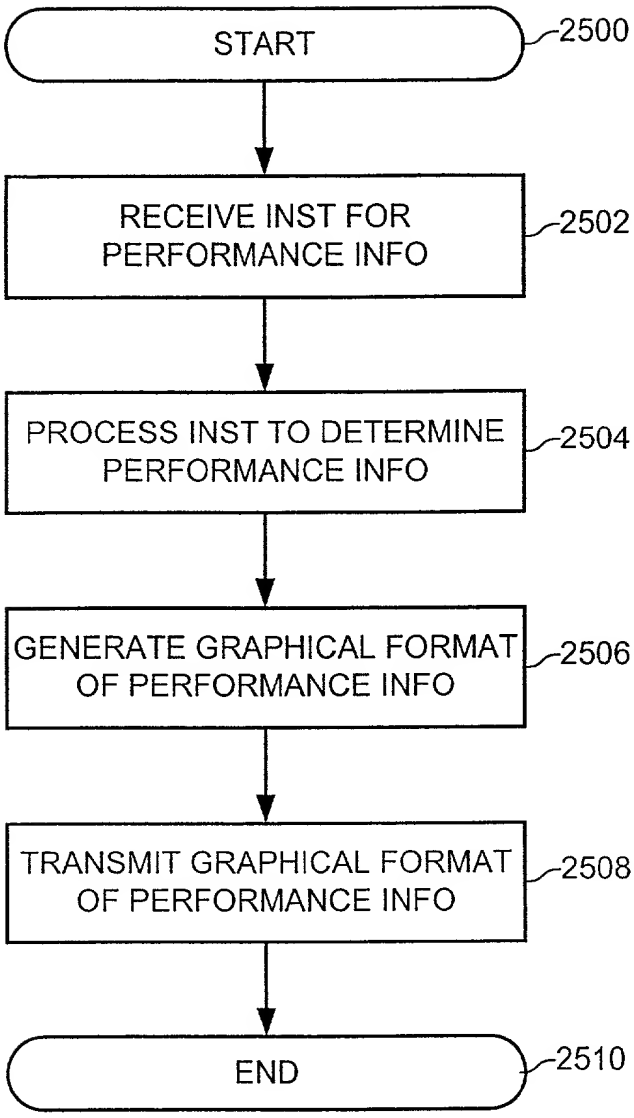

START
2500
RECEIVE INST FOR PERFORMANCE INFO
2502
PROCESS INST TO DETERMINE PERFORMANCE INFO
2504
GENERATE GRAPHICAL FORMAT OF PERFORMANCE INFO
2506
TRANSMIT GRAPHICAL FORMAT OF PERFORMANCE INFO
2508
END
2510

FIG. 25

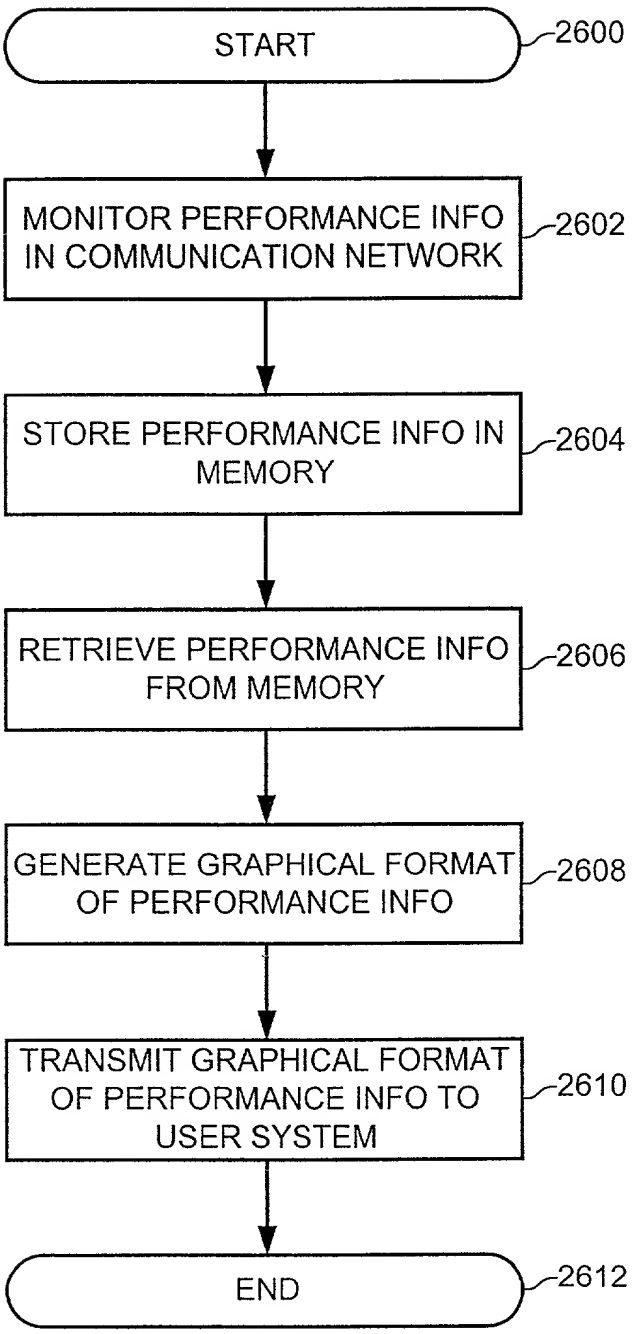

START
2600
MONITOR PERFORMANCE INFO IN COMMUNICATION NETWORK
2602
STORE PERFORMANCE INFO IN MEMORY
2604
RETRIEVE PERFORMANCE INFO FROM MEMORY
2606
GENERATE GRAPHICAL FORMAT OF PERFORMANCE INFO
2608
TRANSMIT GRAPHICAL FORMAT OF PERFORMANCE INFO TO USER SYSTEM
2610
END
2612

FIG. 26

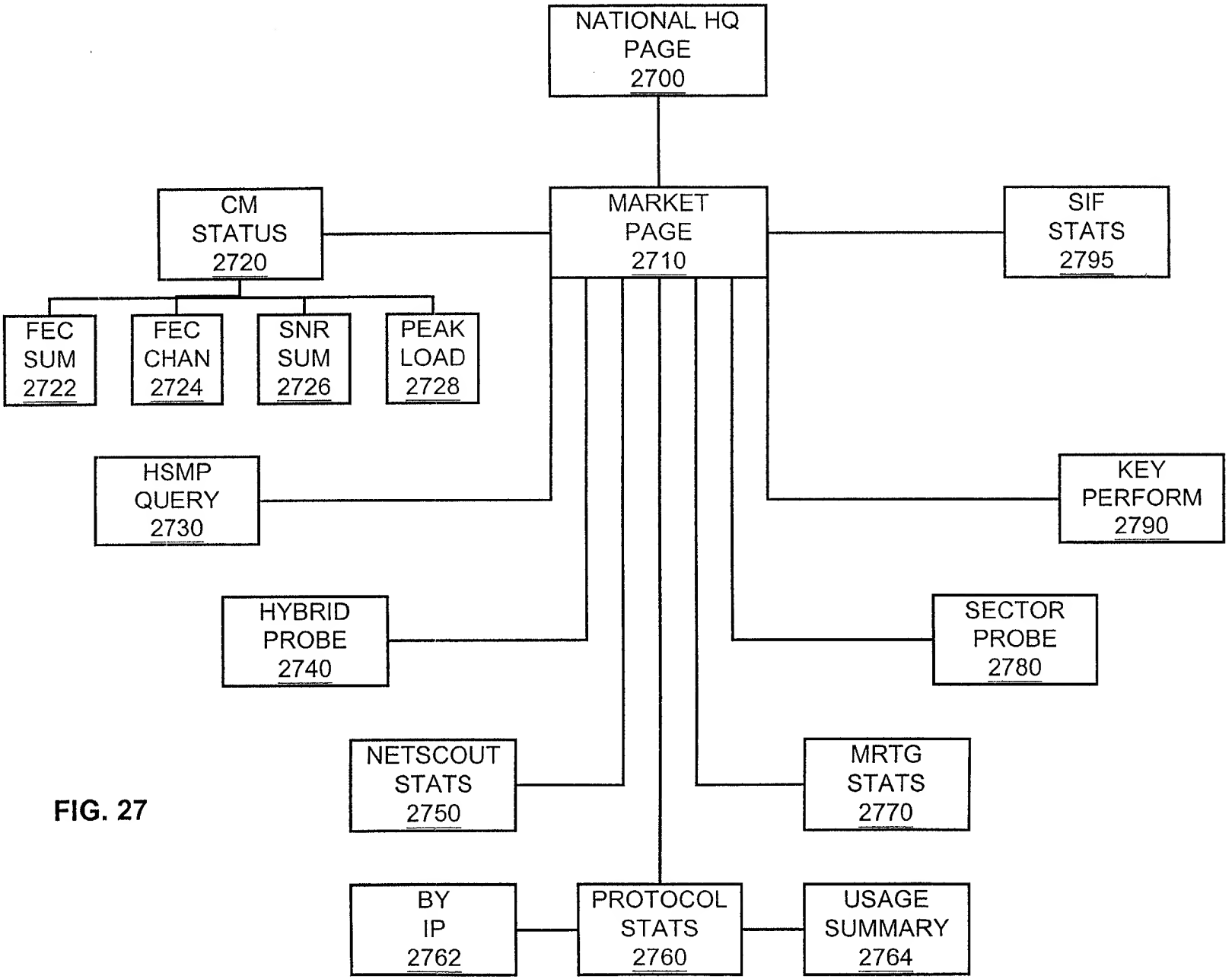

NATIONAL HQ PAGE 2700
CM STATUS 2720
MARKET PAGE 2710
SIF STATS 2795
FEC SUM 2722
FEC CHAN 2724
SNR SUM 2726
PEAK LOAD 2728
HSMP QUERY 2730
KEY PERFORM 2790
HYBRID PROBE 2740
SECTOR PROBE 2780
NETSCOUT STATS 2750
MRTG STATS 2770
BY IP 2762
PROTOCOL STATS 2760
USAGE SUMMARY 2764

FIG. 27

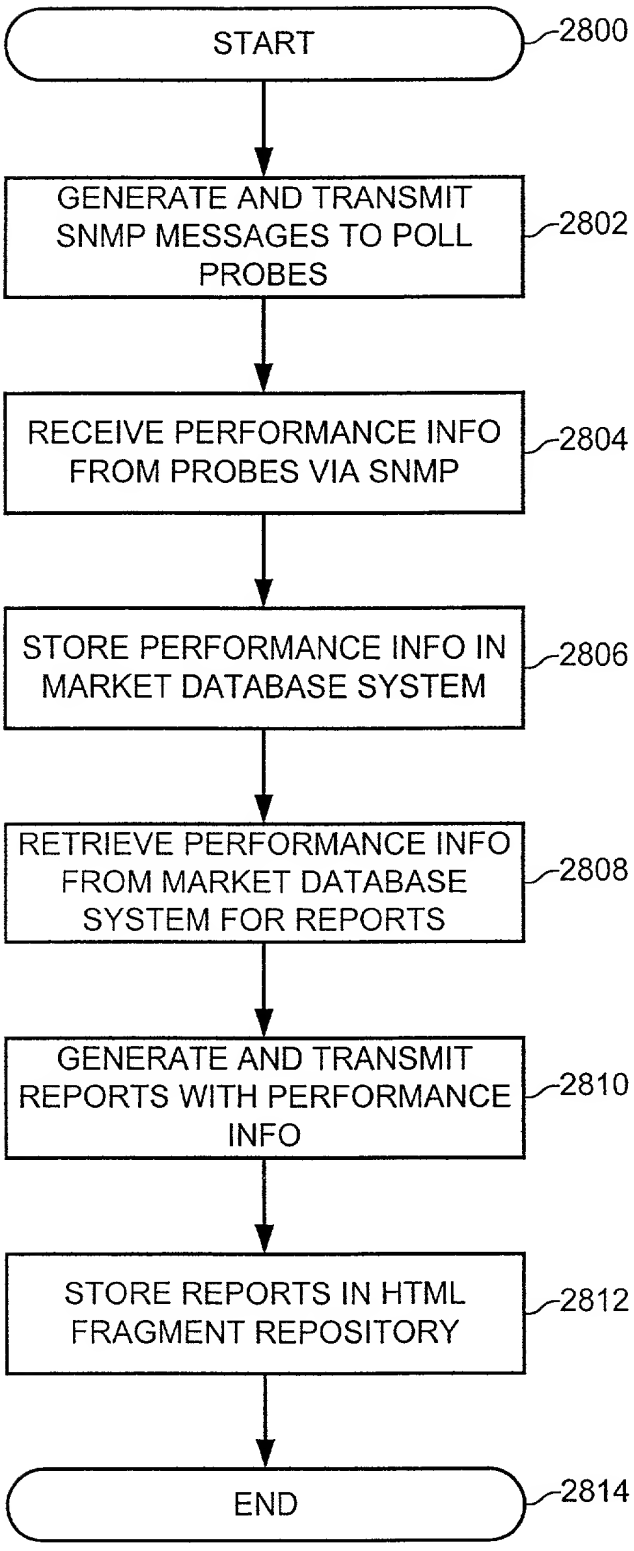


FIG. 28

EXHIBIT 2 - 2576560

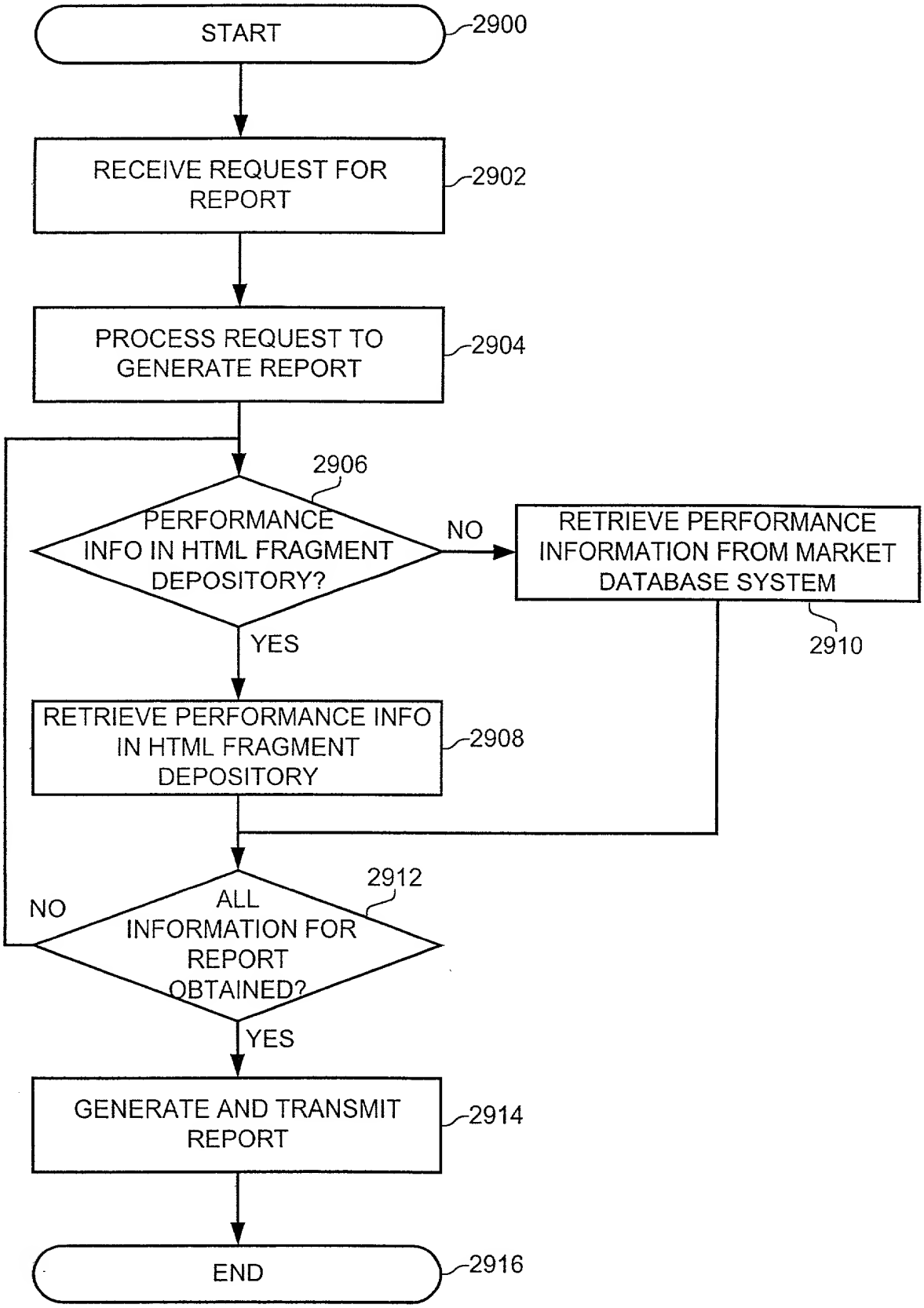

START
2900
RECEIVE REQUEST FOR REPORT
2902
PROCESS REQUEST TO GENERATE REPORT
2904
2906
PERFORMANCE INFO IN HTML FRAGMENT DEPOSITORY?
NO
RETRIEVE PERFORMANCE INFORMATION FROM MARKET DATABASE SYSTEM
2910
YES
RETRIEVE PERFORMANCE INFO IN HTML FRAGMENT DEPOSITORY
2908
2912
NO
ALL INFORMATION FOR REPORT OBTAINED?
YES
GENERATE AND TRANSMIT REPORT
2914
END
2916

FIG. 29

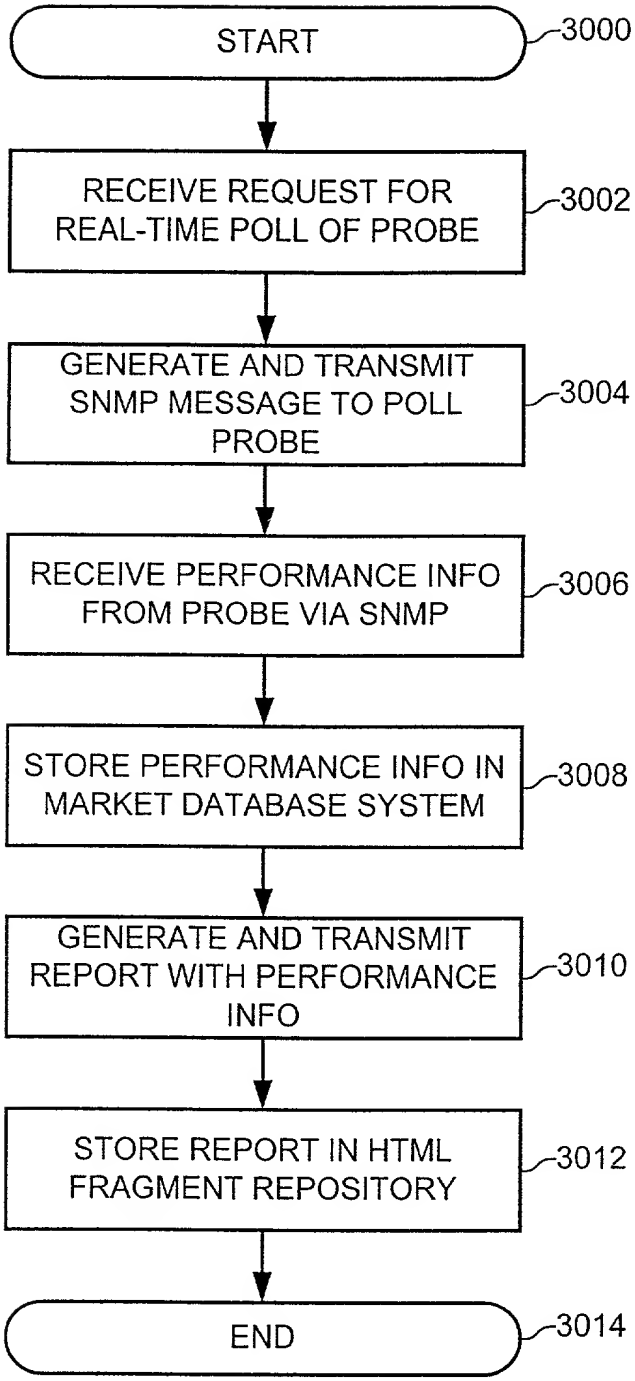

START
3000
RECEIVE REQUEST FOR REAL-TIME POLL OF PROBE
3002
GENERATE AND TRANSMIT SNMP MESSAGE TO POLL PROBE
3004
RECEIVE PERFORMANCE INFO FROM PROBE VIA SNMP
3006
STORE PERFORMANCE INFO IN MARKET DATABASE SYSTEM
3008
GENERATE AND TRANSMIT REPORT WITH PERFORMANCE INFO
3010
STORE REPORT IN HTML FRAGMENT REPOSITORY
3012
END
3014

FIG. 30

T0270T 27697660

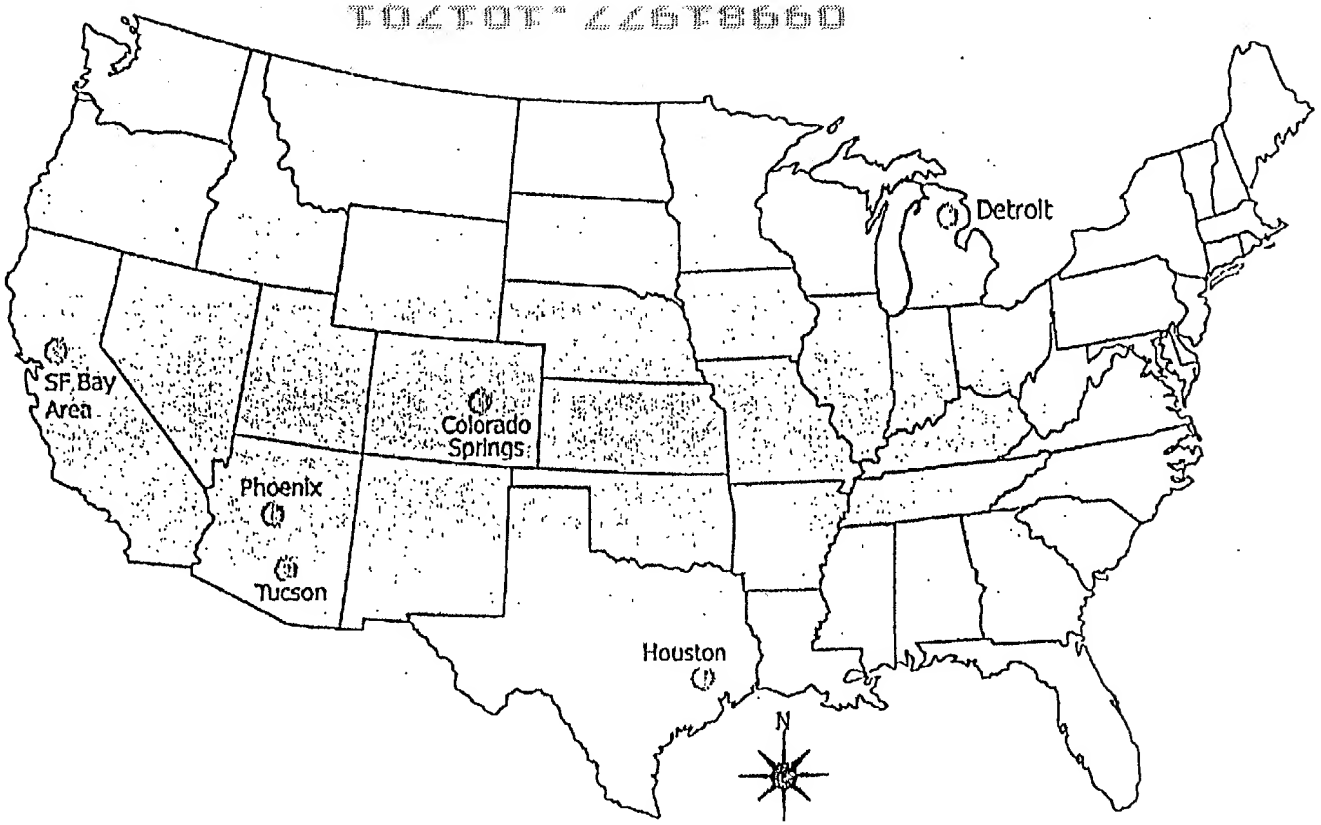


FIG. 31

Performance Management System
VERTEX

CmStatus
HSMP Gateway
Hybrid Probe
NetScout Statistics
Protocol Statistics
MRTG Statistics
Sector Probe
Key Performance Indicators
SIF Statistics

Top

Phoenix Network Health Monitor Interface

Visibility into the network is a primary concern of the Vertex team. It is the job of the network management architecture to enable this visibility. Without it, the network cannot be effectively run: faults cannot be located and corrected, capacity planning cannot be done, and progressive problems cannot be found and stopped from reaching a critical stage until it is too late.

The architecture is generally divided up into three parts: collectors (also known as 'probes'), data warehouses, and reporting tools. Collectors include devices such as the NetScout RMON probe and two in-house engineered probes, the Hybrid Probe and the Sector Probe. Data warehouses consist of Oracle databases residing on Market and National Vertex Servers. These databases run on Sun Microsystems UNIX workstations that have RAID mass storage systems built in. The reporting tools are primarily the web-based tools hosted by the Market VERTEX Servers.

Follow the links along the left-hand side of the page to gain access to VERTEX reports.

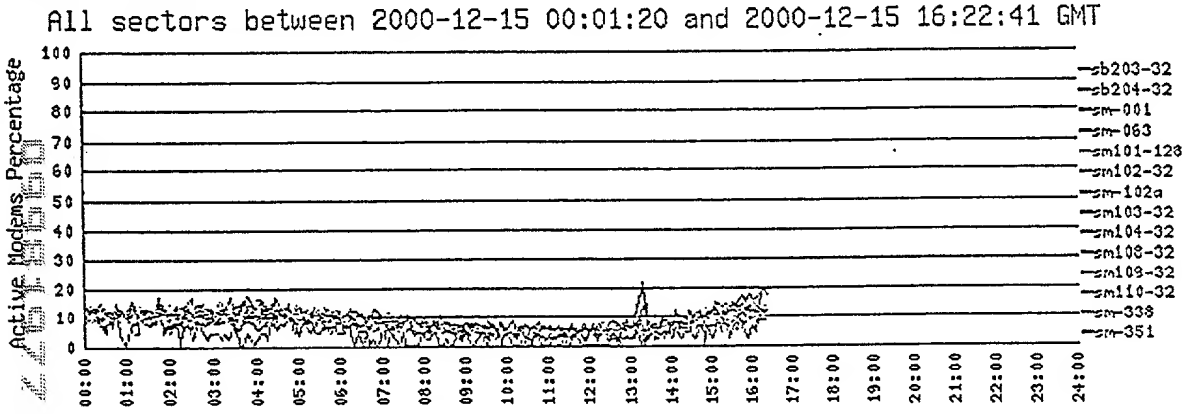
Until a permanent home is picked, hasd size graphs can be found here.

FIG. 32

User/Channel Distribution by Sector

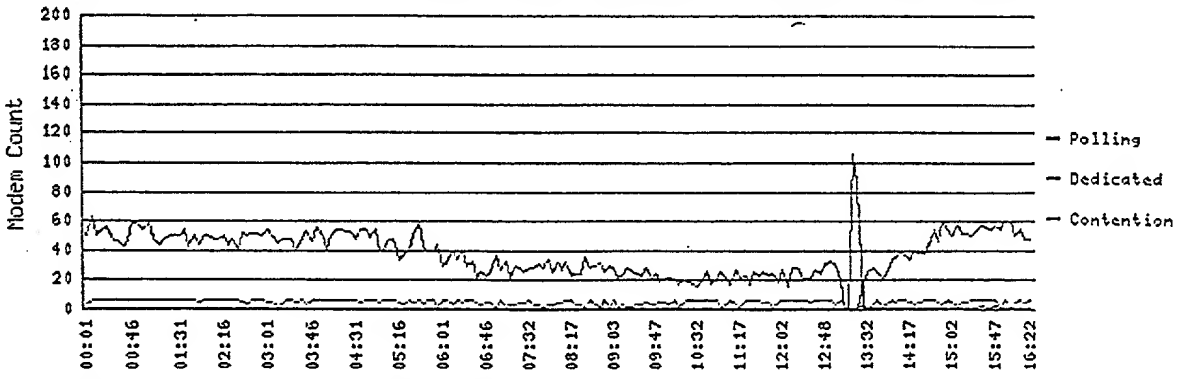
Enter Query Date in YYYYMMDD format: 20001215 Draw

Active Modem Percentage: modem counts in polling, contention, and dedicated over total WBRs.



Sector sb203-32 on hm01.phoenix.speedchoice.com

Click on the summary for detailed graphs.



[FEC Summary] [FEC Channel] [SNR Summary] [Peak Load/Capacity: 103 %]

FIG. 33

FEC Summary Graph for sb203-32

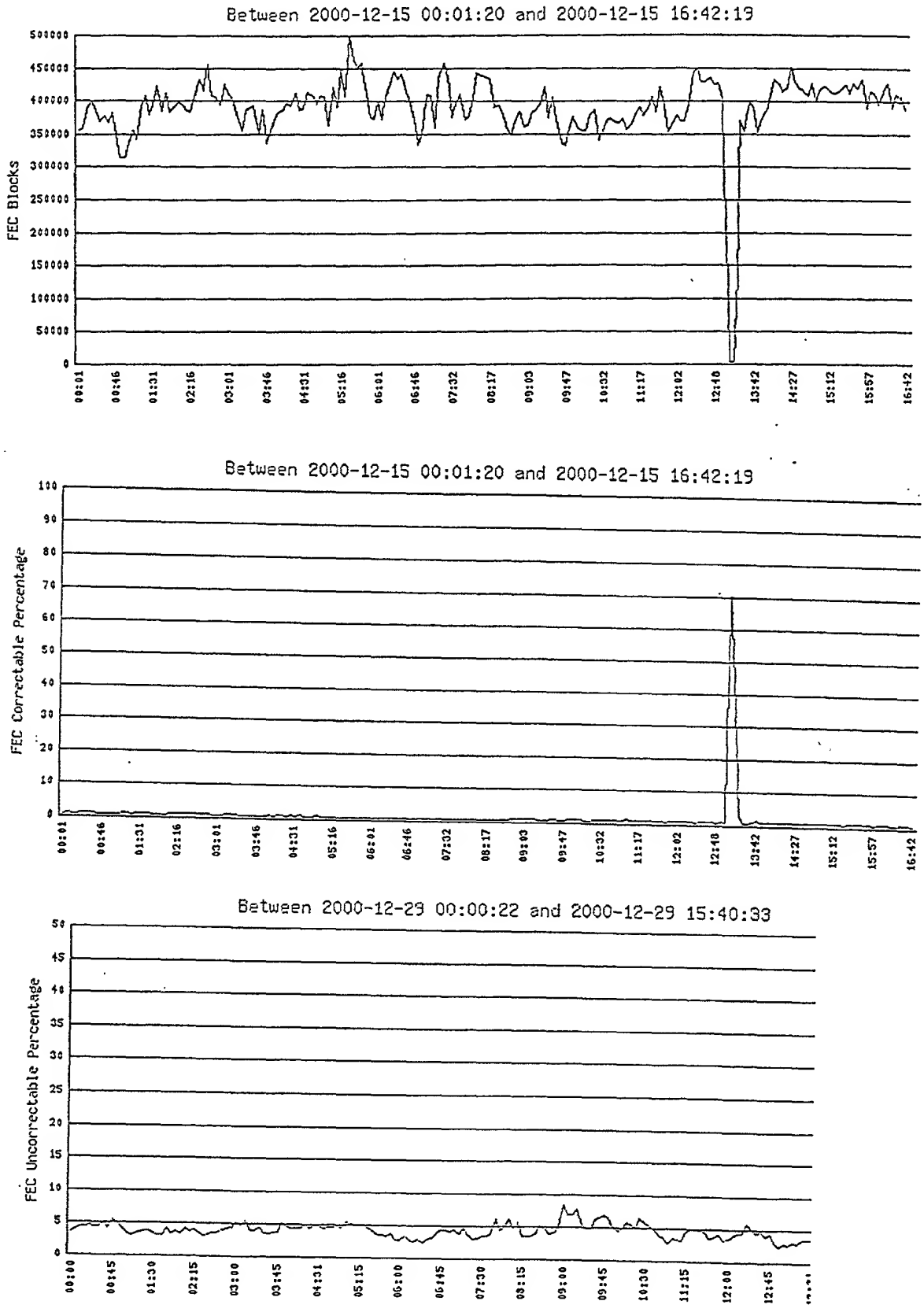


FIG. 34

Channel detail graph for sb203-32 channel 2

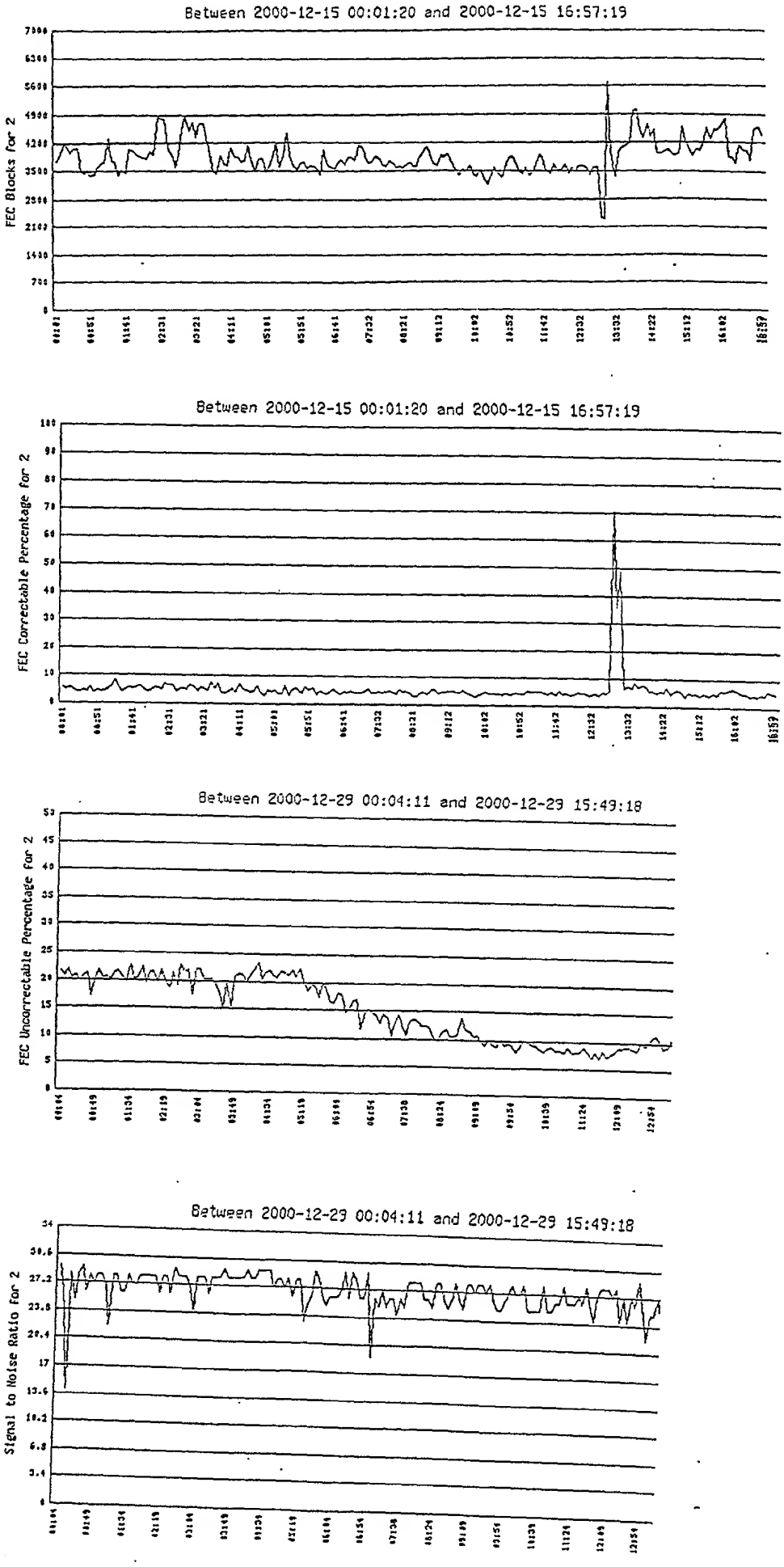


FIG. 35

Signal to Noise graph for sb203-32

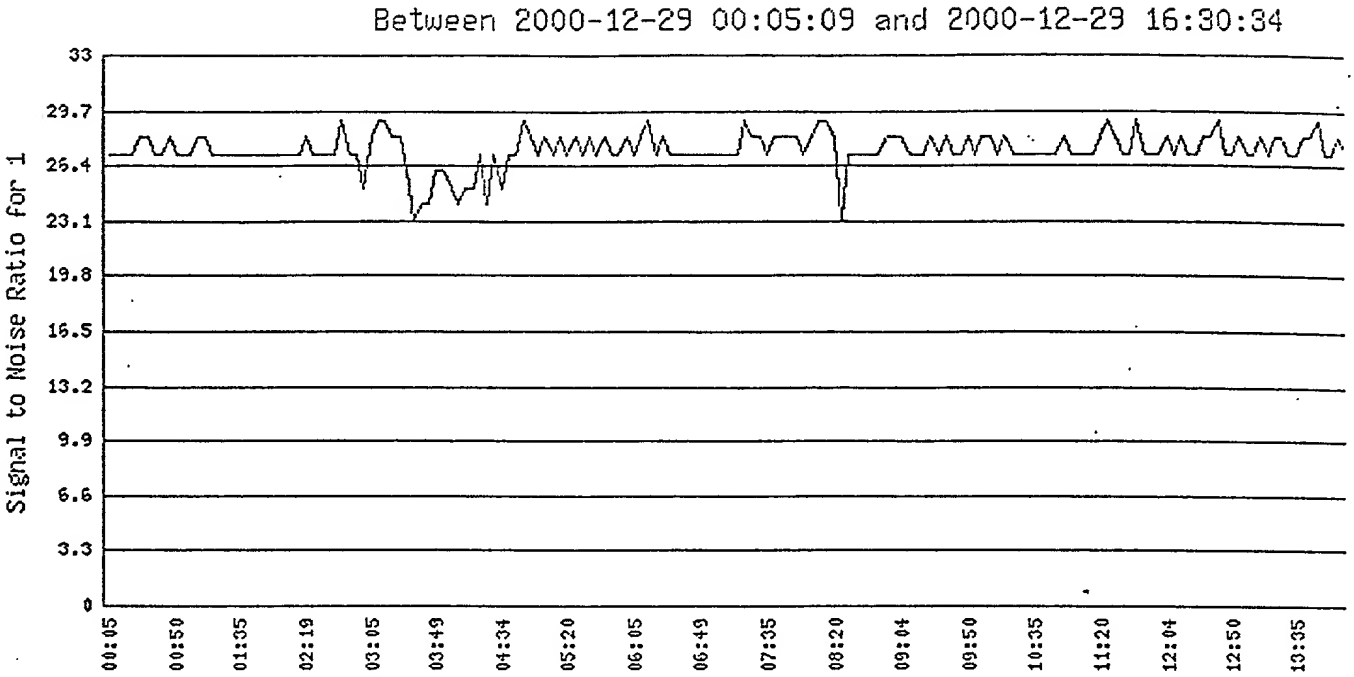


FIG. 36

TOTOT "26T650

Load and Capacity

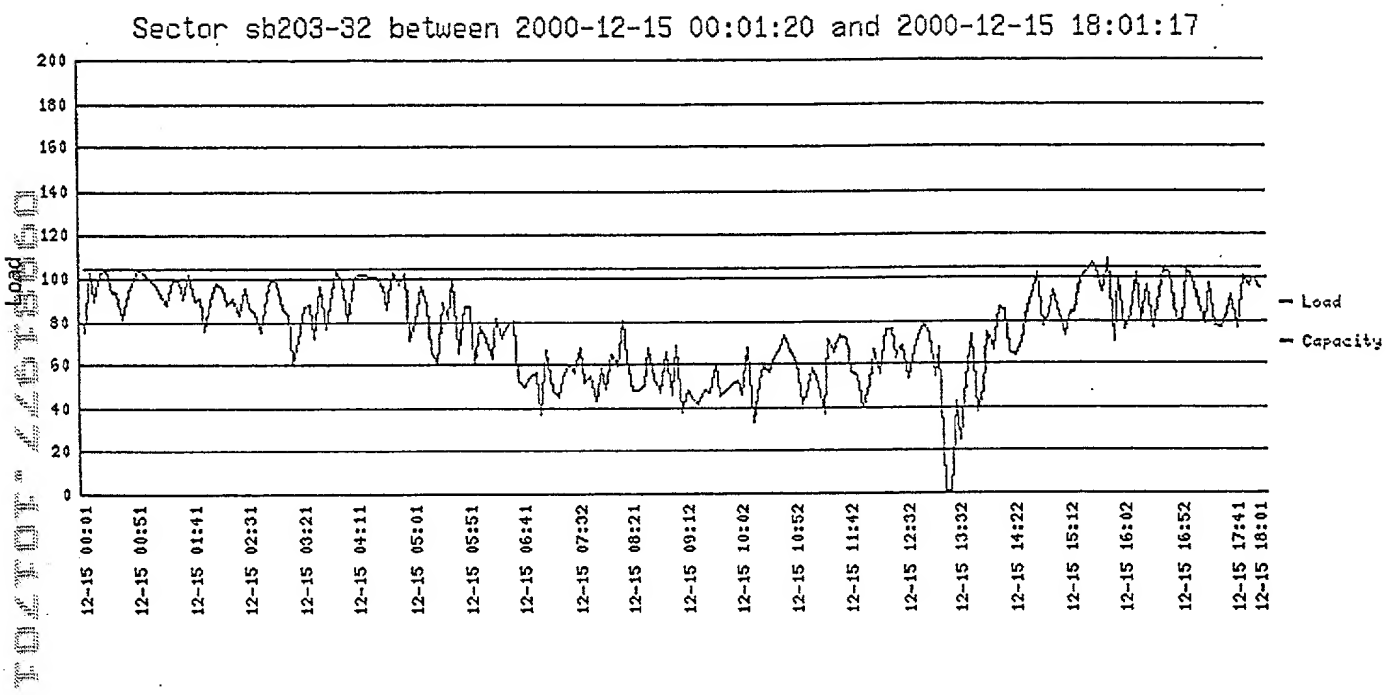


FIG. 37

Remote HSMP Query Form

Access Level	BWG Engineer
IP Address e.g, 24.221.13.83	*Note:* Enter an IP address -or- a User ID; not both
User ID e.g, 149219	*Note:* This corresponds to the UUID field in the database
Query Type	Standard queries: hybs qpsk tstat qpsk stat qpsk gdump qams hostname hybs so0 hybs so1 (Hold down the 'CTRL' key to select multiple queries) Custom query: *Note:* Only administrators can perform custom queries

Submit Request(s)

Warning: This could take up to 30 seconds per query; please be patient

FIG. 38

Hybrid Probe - Phoenix

Start date: 12-19-00 Start time: 00:00:00

End date: 12-19-00 End time: 18:22:19

Number of entries: 10

CSV Format ☐

Get Results

Start time: *12-19-00 00:00:00 GMT*

End time: *12-19-00 18:22:19 GMT*

Currently: *12-19-00 18:22:24 GMT*

IP Address	Active - %	Ratio	Poll - Timer	Ded - Timer	Poll - Tx bytes	Ratio	Ded - Tx bytes	Ratio	Index	Ratio
-										
Total (all)	N/A	N/A	0:0:0:0:0	0:0:0:0:0	N/A	N/A	N/A	N/A		N/A
Average (all)	N/A	N/A	0:0:0:0:1	0:0:0:0:1	N/A	N/A	N/A	N/A	1	N/A

FIG. 39

Top Talkers

Total Users = 812

Total number of upstream bytes for all users = 12983.77 MB's
Total number of downstream bytes for all users = 116697.0 MB's

Average number of upstream bytes per user = 15.99 MB's
Average number of downstream bytes per user = 143.72 MB's

Date Range Searched: From to 2000-12-11 23:59:59

CMID	Up MegaBytes	% of Total	Information	CMID	Down MegaBytes	% of Total	Information
10000002309	1078.07	8.30	Info Detail	10000000462	4544.09	3.89	Info Detail
10000015561	572.24	4.41	Info Detail	10000020500	3811.87	3.27	Info Detail
10000007207	385.66	2.97	Info Detail	10000000698	3701.56	3.17	Info Detail
10000017759	357.82	2.76	Info Detail	10000006338	3395.66	2.91	Info Detail
10000014703	347.42	2.68	Info Detail	10000005958	3342.65	2.86	Info Detail
10000000555	308.35	2.37	Info Detail	10000002126	3272.81	2.80	Info Detail
10000012777	217.74	1.68	Info Detail	10000001712	2838.66	2.43	Info Detail
10000021854	195.93	1.51	Info Detail	10000001410	2618.56	2.24	Info Detail
10000028475	195.15	1.50	Info Detail	10000013661	2540.65	2.18	Info Detail
10000002871	180.43	1.39	Info Detail	10000006955	2505.09	2.15	Info Detail
10000009310	174.94	1.35	Info Detail	10000010571	2246.71	1.93	Info Detail

FIG. 40

Detail Informaiton for CMID 10000002309

Breakdown By Protocol

Protocol	Upstream Bytes	% of Total	Downstream Bytes	% of Total
HTTPS	437990	0	3649130	0
IP	1077630687	99	1089385948	99
Totals	1078068677		1093035078	

Breakdown By IP Address

IP Address	Upstream Bytes	% of Total	Downstream Bytes	% of Total
24.221.206.66	1077630687	99	1089385948	99
24.221.206.71	437990	0	3649130	0
Totals	1078068677		1093035078	

Breakdown of Protocols for IP Address 24.221.206.66

Protocol	Upstream Bytes	% of Total	Downstream Bytes	% of Total
IP	1077630687	100	1089385948	100
Totals	1077630687		1089385948	

FIG. 41

Bad cmid's encountered = 0

Statistics for Market ID 00000010, Market name = Phoenix (new)

Market ID	Date	HR	# of Subscribers	Mb Per Hour	Avg Per Subscriber	Avg MBPS	Peak # of MBPS
00000010	2000-12-12	00	000003	000000054.53	001817.00	000000.01	000000026.01
00000010	2000-12-12	01	000003	000000158.73	005291.00	000000.04	000000118.64
00000010	2000-12-12	02	000002	000000187.85	009392.00	000000.05	000000102.37
00000010	2000-12-12	08	000001	000000055.31	005531.00	000000.01	000000055.31
00000010	2000-12-12	10	000004	000000140.21	003505.00	000000.03	000000084.61
00000010	2000-12-12	11	000001	000000008.07	000807.00	000000.00	000000008.07
00000010	2000-12-12	12	000004	000000024.41	000610.00	000000.00	000000013.55
00000010	2000-12-12	13	000001	000000002.41	000241.00	000000.00	000000002.41
00000010	2000-12-12	15	000001	000000008.83	000883.00	000000.00	000000008.83
00000010	2000-12-12	17	000001	000000001.28	000128.00	000000.00	000000001.28
00000010	2000-12-12	19	000001	000000025.82	002582.00	000000.00	000000025.82
00000010	2000-12-12	20	000001	000000024.97	002497.00	000000.00	000000024.97
00000010	2000-12-12	21	000001	000000023.37	002337.00	000000.00	000000023.37

Statistics for udfg id 526, udfg name = south mtn 101-32/36

Total subscribers in SIF: 110

Udfg ID	Date	HR	Active Subscribers	MegaBits Per Hour	Avg Per Subscriber Per Second	Peak # of MBPS
526	2000-12-11	00	3	34.30	19.10	27.21
526	2000-12-11	01	5	541.81	180.181	388.12
526	2000-12-11	02	2	128.5	10.85	73.6
526	2000-12-11	03	5	761.39	253.239	731.53
526	2000-12-11	04	2	6.14	5.14	5.75
526	2000-12-11	05	5	442.1	14.221	403.91
526	2000-12-11	06	4	266.43	111.3	159.45
526	2000-12-11	07	2	2.99	2.59	1.94
526	2000-12-11	08	2	486.33	405.33	363.5
526	2000-12-11	09	4	312.11	130.11	221.18
526	2000-12-11	10	3	1111.96	617.136	797.57
526	2000-12-11	11	3	49.74	27.114	27.77
526	2000-12-11	12	4	50.63	21.23	41.30
526	2000-12-11	13	3	281.76	156.96	204.44
526	2000-12-11	14	6	598.4	16.224	319.80
526	2000-12-11	15	3	778.66	432.106	525.49
526	2000-12-11	16	3	12.77	7.17	11.60
526	2000-12-11	17	2	27.20	22.80	26.46
526	2000-12-11	18	5	14.80	4.280	6.12
526	2000-12-11	19	1	1.90	3.10	1.90
526	2000-12-11	20	5	44.86	14.286	35.99

FIG. 42

Detail for IP nnn nnn nnn nnn from to 2000-12-12 23:59:59

This is a protocol breakdown for traffic from this IP address. This includes all protocol types, including all TCP and UDP protocols. Two special protocols, TCP~ and UDP~, correspond to "unknown TCP protocol" and "unknown UDP protocol". This means that we don't really know what kind of traffic it is at this point.

Protocol	Downstream KBytes	Upstream KBytes

Totals:

Up: Kbytes
Down: Kbytes

Protocol Summary - 2000-12-12 00:00:00 to 2000-12-12 23:59:59

This is a list of the most popular protocols on our network for the chosen date range. Measurements are in Megabytes and the da range is inclusive. Again, TCP~ and UDP~ represent "other" TCP and UDP apps which have not yet been identified.

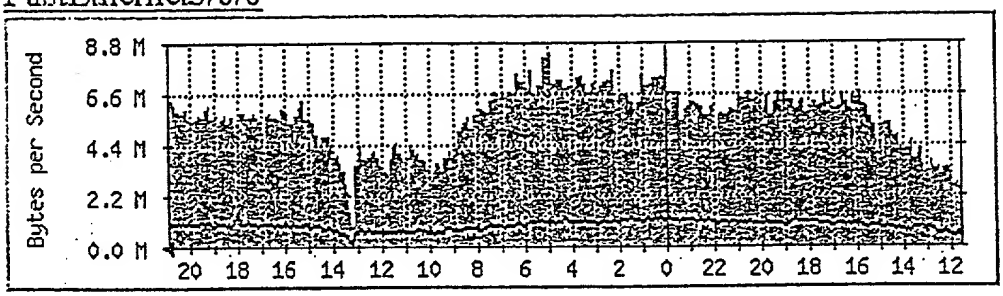
Protocol Name	Megabytes Transferred
NNTP	60997.67
TCP~	20632.16
NAPSTER	10798.85
FTP-DATA	8756.72
HTTP	6938.55
UDP~	3909.48
HTTPS	1215.48
POP3	571.60
AOL	183.04
FTP-CTRL	12.31
REALAUD	10.20
TELNET	8.48
SOCKET	6.92
SQLNET_N	4.31
SUNRPC_T	0.10
COMPUSRV	0.04

FIG. 43

Router Traffic Analysis

Daily Graph (5 Minute Average)

FastEthernet5/0/0

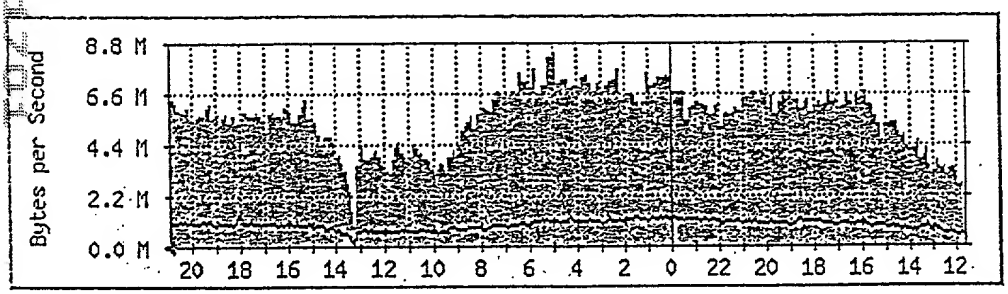


Traffic Analysis for FastEthernet5/0/0
edge01.phoenix.speedchoice.com

System: edge01.phoenix.speedchoice.com in
Maintainer:
Description: FastEthernet5/0/0
ifType: ethernetCsmacd (6)
ifName: Fa5/0/0
Max Speed: 12.5 MBytes/s
Ip: 207.240.93.202 (edge01)

The statistics were last updated **Friday, 15 December 2000 at 21:00,**
at which time **'edge01.phoenix.speedchoice.com'** had been up for **84 days, 10:51:32.**

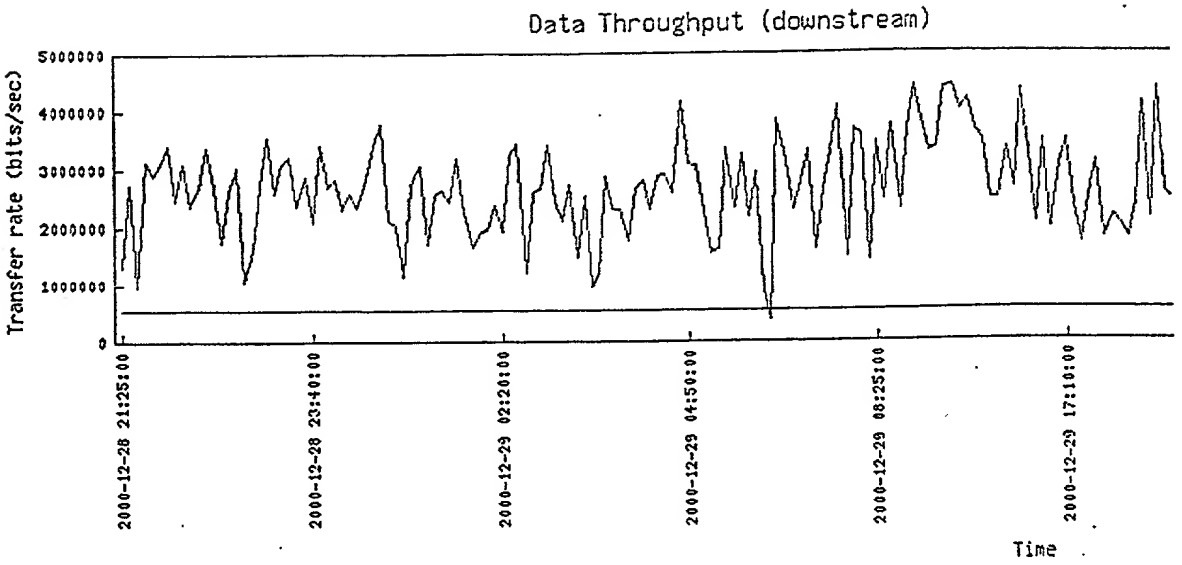
'Daily' Graph (5 Minute Average)

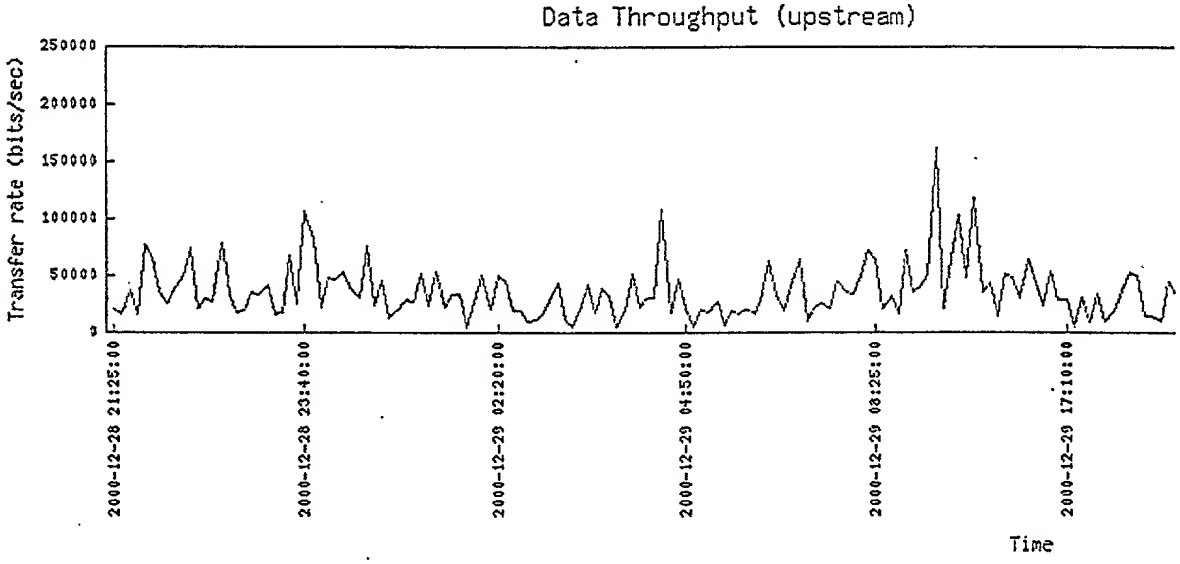


Max In:8409.8 kB/s (67.3%) Average In:5645.1 kB/s (45.2%) Current In:6166.0 kB/s (49.3%)
Max Out:1446.9 kB/s (11.6%) Average Out: 944.8 kB/s (7.6%) Current Out: 1017.5 kB/s (8.1%)

FIG. 44

Sector sm102-32





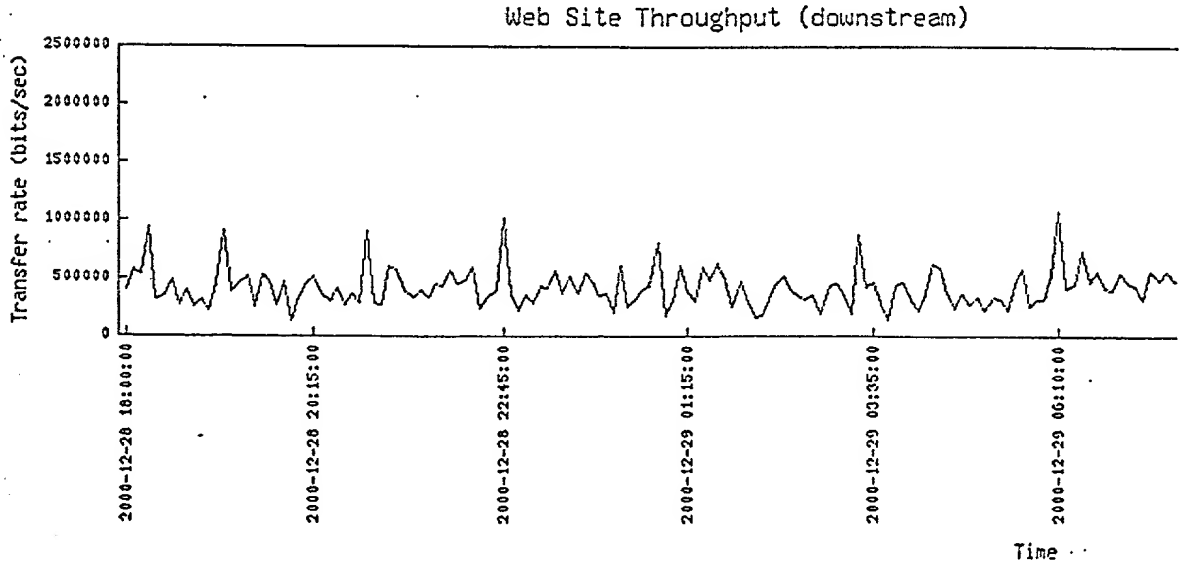
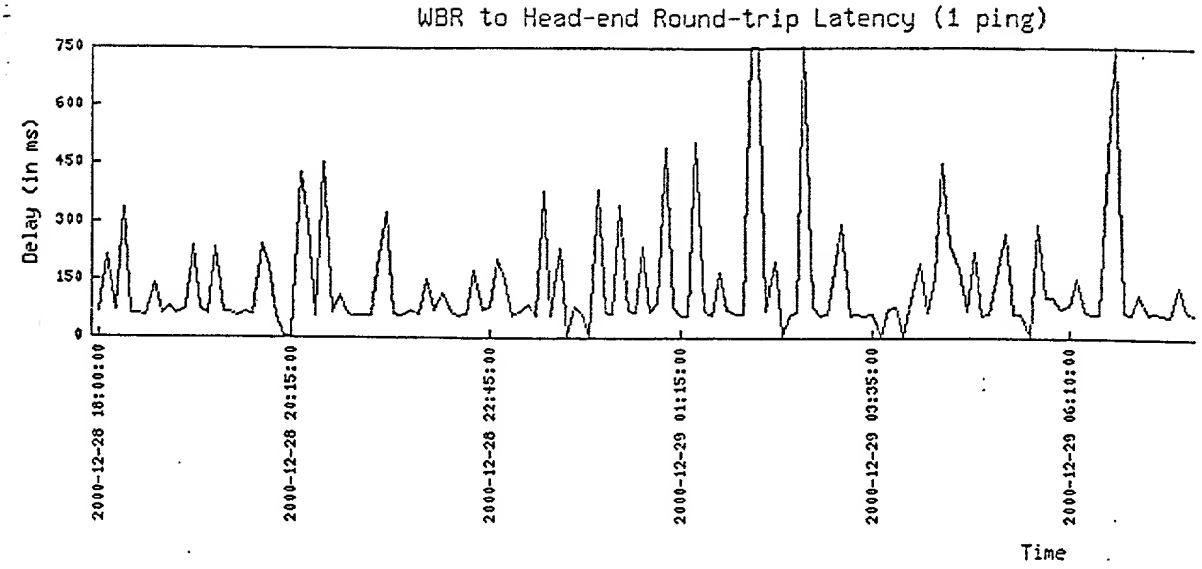
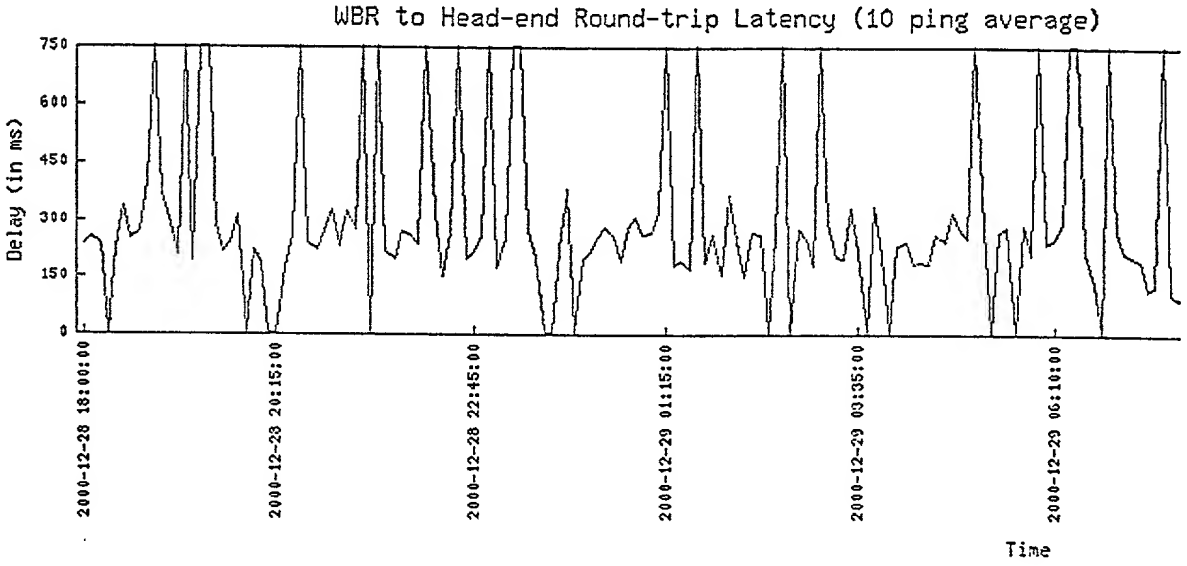


FIG. 45

TOTOT 4515650





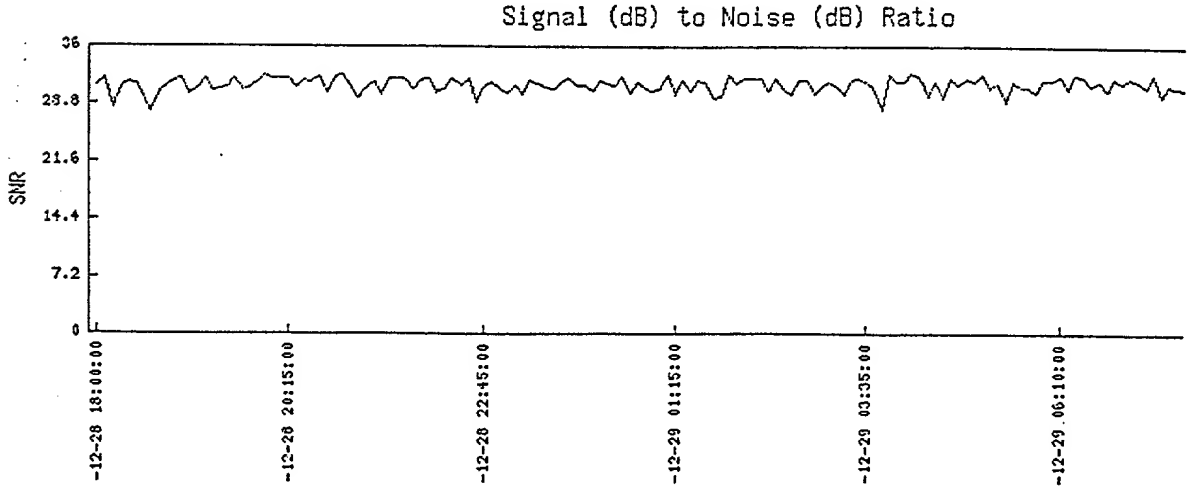


FIG. 46

TOSTOT "2616650

Peak Time: 2000-12-28 12:25:00 CST

Peak Active Modems	Sampled Modems	Activity Ratio
905	7115	12.72%

Modem Counts

Contention	Polling	Dedicated
0	847	58

Off Peak Time: 2000-12-28 06:00:00 CST

Off Peak Active Modems	Sampled Modems	Activity Ratio
152	7115	2.14%

Modem Counts

Contention	Polling	Dedicated
0	98	54

Individual Peak Modem Counts

Contention	Polling	Dedicated
2000-12-28 12:55:00 CST	2000-12-28 12:25:00 CST	2000-12-28 05:45:00 CST
10	847	88

Avg. Time Spent Per User

In Contention	In Polling	In Dedicated
0.03 secs	0.71 secs	1.48 secs

FTP Rates At Off Peak 2000-12-28 06:00:00 CST		FTP Rates At Peak 2000-12-28 12:25:00 CST	
Downstream	Upstream	Downstream	Upstream
3.54 Mbps	85.83 Kbps	2.21 Mbps	32.02 Kbps

FIG. 47a

Peak FTP Rate Downstream	Peak FTP Rate Upstream
2000-12-28 01:40:00	2000-12-28 07:20:00
6.03 Mbps	217.87 Kbps

2000-12-28 00:00:00 CST thru 2000-12-28 23:59:59 CST

Average FTP Rate Midnight-6pm (off peak)		Average FTP Rate 6pm-Midnight (peak)	
Downstream	Upstream	Downstream	Upstream
2.69 Mbps	51.31 Kbps	2.01 Mbps	38.27 Kbps

2000-12-28 00:00:00 CST thru 2000-12-28 23:59:59 CST

Average HTTP Rate Midnight-6pm (off peak)	Average HTTP Rate 6pm-Midnight (peak)
470.34 Kbps	384.46 Kbps

FEC Corrections	FEC Uncorrectables
32.55 : 1000	1.53 %

Available Channels

230

Max Functioning Channels	Min Functioning Channels	Avg Functioning Channels
230	68	226.44

Max Non-Functioning Channels	Min Non-Functioning Channels	Avg Non-Functioning Channels
162	0	3.56

Signal to Noise Ratio

24.93 : 1

Requested to Scheduled Modem Calibration Ratio

0.65 : 1

Downstream to Upstream Bitrate Ratio
(All MEASUREMENTS ARE PER USER)

	02:00:00 - 02:15:00 CST	10:00:00 - 10:15:00 CST	14:00:00 - 14:15:00 CST	22:00:00 - 22:15:00 CST
12-28	4.01 : 1	4.46 : 1	10.68 : 1	4.56 : 1

TOAST-2567860

FIG. 47b

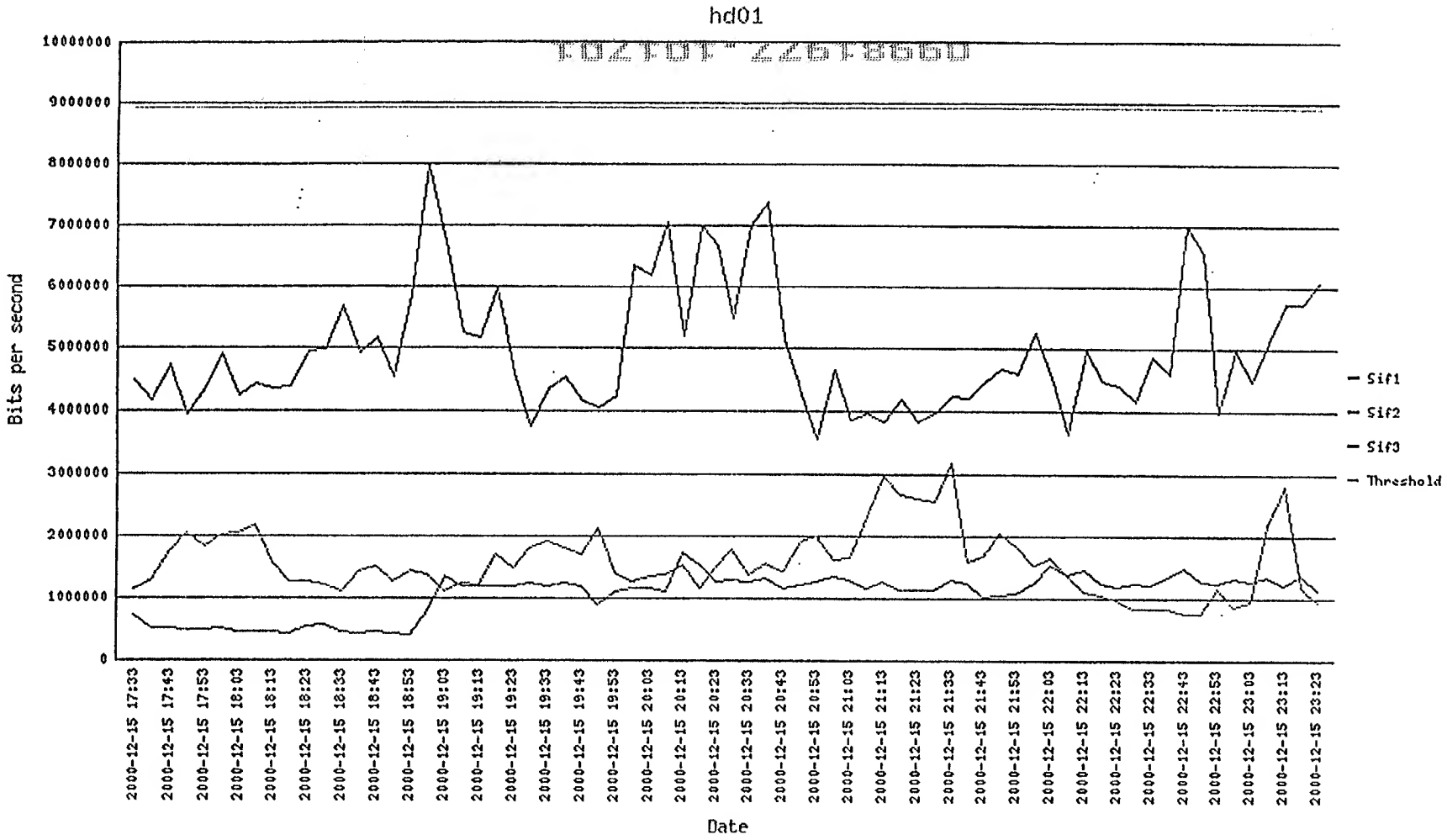

hd01
10000000
9000000
8000000
7000000
6000000
5000000
4000000
3000000
2000000
1000000
0
Bits per second
Sif1
Sif2
Sif3
Threshold
2000-12-15 17:33
2000-12-15 17:43
2000-12-15 17:53
2000-12-15 18:03
2000-12-15 18:13
2000-12-15 18:23
2000-12-15 18:33
2000-12-15 18:43
2000-12-15 18:53
2000-12-15 19:03
2000-12-15 19:13
2000-12-15 19:23
2000-12-15 19:33
2000-12-15 19:43
2000-12-15 19:53
2000-12-15 20:03
2000-12-15 20:13
2000-12-15 20:23
2000-12-15 20:33
2000-12-15 20:43
2000-12-15 20:53
2000-12-15 21:03
2000-12-15 21:13
2000-12-15 21:23
2000-12-15 21:33
2000-12-15 21:43
2000-12-15 21:53
2000-12-15 22:03
2000-12-15 22:13
2000-12-15 22:23
2000-12-15 22:33
2000-12-15 22:43
2000-12-15 22:53
2000-12-15 23:03
2000-12-15 23:13
2000-12-15 23:23
Date

FIG. 48